January 31, 1981
FIVE DOLLARS

Serving the Farm and Industrial Equipment Industry Since 1886

Implement & Tractor

RED BOOK RED BOOK RED BOOK RED BOOK

RED BOOK

BEST AVAILABLE COPY

January 31, 1981 • Vol. 96 • No. 4

Implement&Tractor

The Business Magazine of the Farm and Industrial Equipment Industr

65th annual edition
Implement&Tractor

ADVERTISER' INDEX B175

ENGINES:
Engines Under 45 Cubic Inches Displacement A90
Engines, 45 Cubic Inches Displacement and Larger A97

EQUIPMENT:
Backhoes B127
Combines, Pull Type B10
Combines, Self-Propelled B1
Corn Shellers B64
Crop Drying Equipment B146
Elevators, Auger Type B137
Elevators, Belt and Chain Types B132
Feed Grinder-Mixers B163
Fertilizer Spreaders, Broadcast Type B96
Flail Cutters B53
Forage Blowers B61
Forage Harvesters, Cylinder and Flywheel Types B57
Forage Harvesters, Flail Cutter Type B57
Hay Balers, Conventional Size Bale B36
Hay Balers, Big Package B37
Hay Mowers, Drum and Disk Types B33
Hay Stacking Wagons (Loose Hay) B38
Hay Tub Grinders B165
High Pressure Washers B166
Liquid Herbicide Applicators B78
Loaders, Compact Skid Steer and Articulated B119
Loaders, Tractor Front Mounted Farm Type B104
Mower-Conditioners, Cutterbar Pull Type B31
Mower-Conditioners, Self-Propelled B29
Power Harrows B94
Roadside Mowers, Boom & Sidearm Mtd. B52
Rotary Cutters B39
Rotary Tillers B88
Sprayers, Air Mist B83
Sprayers, Hydraulic B65
Wagons, Auger Unloading B154
Wagons, Feed Mixer B157
Wagons, Forage and Cross Conveyor B160
Wagons, Hay Stacking B38

IMPLEMENT & TRACTOR
Editorial, advertising and circulation correspondence should be addressed to:
9221 Quivira Rd.
P.O. Box 12901
Overland Park, Kan. 66212
(A suburb of Kansas City, Mo.)
Telephone (913) 888-4664
Telex: 42-4156; Answerback Intertec OLPK

EDITORIAL
Bill Fogarty, Editor
Jack Root, Managing Editor
Charles G. Ewing, Editor, Red Book
L. L. Tigner, Asst. Ed. Red Book
Pat Blanton, Editor, Product File
Dudley Rose, Senior Art Director
Anita Blattner, Art Director
Irma Allread, Editorial Assistant

Contributing Editors:
Paul Crisford, Britain and Europe
Frank Buckhingham, Agricultural Engineering
Melvin E. Long, Engineering and Production Topics

CIRCULATION
John Arnst, Director
Evelyn Rogers, Manager
Dee Manies, Reader Correspondent

ABP
A member of American Business Press

ABC
A member of Audit Bureau of Circulations

ADVERTISING
Lou McNeill, Production
Dee Unger, Red Book Supervisor
Fulfillment & Production
(Regional advertising sales offices listed on ad index page.)

ADMINISTRATION
R. J. Hancock, President
Edward F. Mickells, Publisher

INTERTEC PUBLISHING CORP.

©Copyright, 1981, INTERTEC PUBLISHING CORP. All rights reserved. Material may not be reproduced or photocopied in any form without written permission of publisher.

Controlled circulation postage paid at Shawnee Mission, Kan., 66201. Postmaster: Return Form 3579 to IMPLEMENT & TRACTOR, P.O. Box 12901, Overland Park, KS 66212.

Redbook Issue

Windrowers, Pull Type B31
Windrowers, Self-Propelled B29

HYDRAULIC COMPONENTS:
Hydraulic Control Valves A215
Hydraulic Couplings, Self-Sealing A232
Hydraulic Cylinders A224
Hydraulic Motors A198
Hydraulic Pumps A188
Hydraulic Pump and Valve Packages A214

NEBRASKA TRACTOR TESTS:
Explanation of Test Reports A132
Index of 1980 Tractor Test Reports A131
The Nebraska Tractor Test Law A131
Ten-Year Summary of Test Reports, 1971-1980 ..... A182

TIRES:
Liquid Ballast Table for Agricultural Tires . A240
Tire Air Pressure, Load and Tangential (Drawbar) Pull Capacity Charts A242

TRACTORS:
Agricultural Crawler Tractors A10
Agricultural Wheel Type
Four-Wheel Drive A78
Two-Wheel Drive, With or Without Front Drive Option A20
Industrial Wheel Type Tractors A86
Tractor Engine Valve Spring Specifications A130
Tractor Serial Numbers A246
Tractor PTO HP & Tune-Up Specs A122

TRANSPORT EQUIPMENT GROUND LOADING
Field Implement Transport B28
Gooseneck Trailers B22
Pull Trailers (4T & Over) B11
Semi Trailers B15
Truck Flatbeds B25

IMPLEMENT & TRACTOR (USPS 461-750), with which is combined Farm Implement News, is published twice monthly except in January and March, when third issues are published, and in July and December, when one issue only is published, by INTERTEC PUBLISHING CORP., 9221 Quivira Rd., Overland Park, Ks. 66215 (a suburb of Kansas City, Mo.)

Subscription information— Implement & Tractor is edited for persons in the farm and industrial equipment industry who function in the areas of retail sales and service, distribution sales and service, marketing, engineering, financing, manufacturing and general maintenance. Subscription prices to qualified subscribers: U.S. one year—$10, two years—$15; elsewhere including Canada, one year—$17, two years—$25. Subscription prices to all others: U.S. one year—$34, two years—$68; elsewhere including Canada, one year—$38, two years—$78. Single copies, $2, except Annual Statistical Number, $4; Product File issue, $5; Red Book issue, $5. Adjustment necessitated by subscription termination at single copy rate. Extra charge for service on back issues. Allow 6-8 weeks for change of address and new subscriptions.

For addresses of manufacturers whose products are listed in this edition, refer first to advertiser's index and obtain address from advertisement. For non-advertisers and companies that do not show an address on their advertisement, refer to company name and address listing in I&T PRODUCT FILE (Annual March 31 issue).

Nebraska Tests Section

contents

Tractor Make & Model	Test No.	Page No.
ALLIS-CHALMERS		
7010 Power Director Diesel 20 Speed	1345	A-157
7010 Power Shift Diesel 12 Speed	1346	A-159
BELARUS		
1500 Diesel (T-150K) 12 Speed	1333	A-133
7100 Diesel (K-701) 16 Speed	1334	A-135
Tests 1333 and 1334 were in 1979 test series.		
JOHN DEERE		
2040 Diesel 8 Speed	1350	A-167
1940 Diesel 16 Speed	1351	A-169
HESSTON FIAT		
580DT Diesel, Also 680 Diesel—8 Speed	1352	A-171
880DT-5 Diesel, Also 880-5 Diesel—12 Speed	1353	A-173
980DT Diesel, Also 980 Diesel—16 Speed	1354	A-175
INTERNATIONAL HARVESTER		
686 Diesel 10 Speed	1336	A-139
Hydro 86 Diesel	1337	A-141
886 Diesel 16 Speed	1338	A-143
886 Diesel 16 Speed, Serial Number 2490208U17026 Up	1339	A-145
KUBOTA		
M4500DT Diesel, Also M4500 Diesel—16 Speed	1348	A-163
M7500DT Diesel, Also M7500 Diesel—16 Speed	1349	A-165
LEYLAND		
472 Diesel, Also 272 Diesel—9 Speed	1341	A-149
482 Diesel, Also 282 Diesel—9 Speed	1340	A-147
MASSEY-FERGUSON		
4800 Diesel 18 Speed, Also 12 Speed	1342	A-151
4840 Diesel 18 Speed, Also 12 Speed	1343	A-153
4880 Diesel 18 Speed, Also 12 Speed	1344	A-155
SATOH MITSUBISHI		
Stallion S750DD, Also S750D—9 Speed	1347	A-161
STEIGER		
PTA-325 Diesel 10 Speed	1355	A-177
VERSATILE		
835 Diesel 12 Speed	1356	A-179
895 Diesel 12 Speed	1335	A-137

This section includes only those 1980 Nebraska Tests for which the printed form is available December 31, 1980. The 1980 Fall Series tests will be reproduced at a later date.

The Nebraska Tractor Test Law

. **Purpose of the Law**—The Nebraska Tractor Test Law originated in 1919 for the purpose of verifying advertising claims on tractors offered for sale to Nebraska farmers.

Its position as the only independent test laboratory in the United States devoted to the evaluation of tractor performance proved of unique value to the industry. The Agricultural Tractor Test Code used in the Nebraska Tests was developed with the approval and assistance of the American Society of Agricultural Engineers and the Society of Automotive Engineers, and is revised and updated periodically as the need arises. The Test Code (ASAE S209.4 or SAE J708c) is published in the ASAE Yearbook and SAE Handbook.

. **Provisions of the Law**—Stated briefly, the Nebraska Tractor Test Law provides:

That a stock unit of each agricultural tractor model sold in Nebraska shall be tested and passed upon by a board of three engineers under the supervision and direction of the University of Nebraska. Each tractor must be certified as a stock model and will be equipped with the common power consuming accessories. An official representative of the manufacturer is present during the test to see that the performance meets company standards.

The Department of Agriculture shall deny to any manufacturer the right to do business in the State on complaint of two or more bona fide customers that the company has failed to maintain an adequate service station with a full supply of replacement parts within the state and within reasonable distance of customers.

The law further states that it shall be unlawful to publish excerpts from any official test in advertising material without publishing the entire report.

The provisions of the Nebraska Test Law do not apply to any tractor the engine of which develops less than 20 hrosepower; or to tractors manufactured, sold and used for heavy construction when identical units are not sold and used for agricultural purposes.

Explanation of Test Report

Individual copies of any test report, annual summary booklets or annual subscription (at $3.50) are available. For complete information write to **Department of Agricultural Engineering, University of Nebraska—Lincoln, Lincoln, Nebraska 68583.**

GENERAL CONDITIONS

Each tractor tested is certified by the manufacturer to be a stock model. Tractor is equipped with all common power consuming accessories (power steering, lift pump, alternator, etc.) normally sold. Accessories may be disconnected only when the means for disconnecting can be reached from operator's station. Ballast can be added if recommended by the manufacturer and in amounts allowed under warranty policy. Static tire loads and inflation pressures must conform to standards established by the Tire & Rim Association.

PREPARATION FOR TESTS

The crankcase is drained and refilled with a weighed amount of new oil conforming to specifications in the operator's manual. The operator's manual is also used in selecting the proper fuel and for routine lubrication and maintenance operations. A time clock is installed to record total running time. A 12-hour run-in period under varying drawbar load is made on the test track under the direction of the manufacturer's representative. Preliminary adjustments can be made at this time. Parts added or removed under this or later runs are noted on the test report.

The tractor is equipped with approximately the amount of added ballast to be used during the drawbar test runs.

PTO PERFORMANCE

All PTO tests are made by connecting tractor PTO shaft to a dynamometer. During a preliminary power take-off run, the manufacturer's representative may make fuel, injection (ignition) timing and governor control settings. These settings must be maintained for remainder of tests. PTO test area is maintained at approximately 75°F. and tests are only run at 28.7 in. Hg or higher barometric pressure at test sight (1100 ft. altitude). Standard diesel fuel is heated to operating temperature characteristic of fuel system under test and maintained at that temperature. Fuel operating temperature is listed in "REMARKS" portion of each test.

Maximum Power and Fuel Consumption. Maximum power is tested for two hours at rated engine speed. Fuel consumption in gallons per hour, lbs per hp hour and hp-hr per gallon are noted and recorded. If standard PTO speed differs from rated engine speed a second (one hour) test run is made at PTO Rated Speed and the results recorded.

Varying Power and Fuel Consumption. Six 20-minute tests are made at (1) 85% of dynamometer torque at maximum power, (2) minimum dynamometer torque, (3) ½ of the 85% torque, (4) maximum power, (5) ¼ of the 85% torque and (6) ¾ of the 85% torque. This test is designed to approximate the varying load a tractor is subjected to during normal operation, and the fuel consumption figures given on the "Average" (Av) line closely indicate expected fuel use. Crankshaft speed variations also give some indication of governor performance.

DRAWBAR PERFORMANCE

Drawbar tests for pneumatic tires are performed on a concrete test course containing two 500-foot straight level areas and two 180 degree turns with a minimum radius of 50 feet. All engine adjustments are the same as those used in power take-off tests. Tire pressures are set at proper level, weights are added or removed and the tractor front, rear and total weight are taken and recorded.

Varying Power and Fuel Consumption. Maximum drawbar performance tests and varying power tests are made in the gear selected by the manufacturer. Slip of drive wheels must not exceed 15%, safe stability limits of the tractor must not be exceeded and 20% of static front end weight must remain on front wheels throughout the test.

The drawbar pull is set in four different test runs as follows: (1) Maximum power in selected gear; (2) 75% of pull at maximum power (10 hour test); (3) 50% of pull at maximum power; and (4) 50% of pull at reduced engine speed. In the final (50%) run, load and ground speed are maintained at levels set in previous run but transmission is shifted to a higher travel speed and crankshaft speed is reduced.

Maximum power in Selected Gears. In this run all forward gears are tested between 15% drive wheel slip and 10 miles per hour. This represents a minor change from earlier tests in which six manufacturer selected gears were tested, one of which could exceed 8 mph.

Lugging Ability in Rated Gear. The first run in this test is made at 100% maximum pull in the gear selected by the manufacturer. In each succeeding run, drawbar load is increased to reduce ground speed 10%, then drawbar pull, horsepower and drive wheel slip is recorded. The test ends when ground speed is reduced by 50% or when equipment limitations halt the test.

SOUND MEASUREMENT

Sound is recorded during each of the Varying Power drawbar tests, as the tractor travels on a straight section of the course. The dB(A) sound level is obtained by a microphone located near the right ear of the operator. Bystander sound readings are taken 25 feet from side of tractor during maximum throttle.

An increase of 10 dB(A) will approximately double the loudness to the human ear.

NEBRASKA TRACTOR TEST 1333 — BELARUS 1500 DIESEL (T-150K) 12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1024 rpm)								
168.76 (125.84)	2100	10.386 (39.314)	0.436 (0.265)	16.25 (3.201)	200 (93.2)	54 (12.3)	75 (23.9)	29.020 (97.996)
Standard Power Take-off Speed (1000 rpm)—One Hour								
169.63 (126.49)	2050	10.291 (38.956)	0.429 (0.261)	16.48 (3.247)	199 (92.8)	54 (12.2)	75 (23.7)	28.975 (97.844)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
147.00 (109.62)	2153	9.202 (34.832)	0.443 (0.270)	15.98 (3.147)	192 (88.6)	54 (12.2)	75 (23.9)	....
0.00 (0.00)	2255	2.590 (9.803)	....	....	175 (79.4)	53 (11.7)	74 (23.6)	....
75.36 (56.19)	2207	5.811 (21.997)	0.546 (0.332)	12.97 (2.555)	183 (83.9)	54 (12.2)	75 (23.9)	....
169.57 (126.45)	2100	10.372 (39.261)	0.433 (0.263)	16.35 (3.221)	198 (92.2)	54 (12.2)	76 (24.2)	....
38.13 (28.44)	2233	4.090 (15.483)	0.759 (0.462)	9.32 (1.837)	178 (81.4)	54 (11.9)	75 (23.9)	....
111.77 (83.35)	2182	7.511 (28.431)	0.476 (0.289)	14.88 (2.932)	184 (84.7)	53 (11.7)	75 (23.9)	....
Av 90.30 (67.34)	**2188**	**6.596** (24.968)	**0.517** (0.314)	**13.69** (2.697)	**185** (85.0)	**54** (12.0)	**75** (23.9)	**28.953** (97.771)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 6th (2-2) Gear											
147.03 (109.64)	10381 (46.18)	5.31 (8.55)	2100	3.61	10.119 (38.306)	0.487 (0.296)	14.53 (2.862)	191 (88.3)	50 (9.7)	64 (17.8)	28.665 (96.797)
75% of Pull at Maximum Power—Ten Hours 6th (2-2) Gear											
118.73 (88.53)	8048 (35.80)	5.53 (8.90)	2170	2.77	8.491 (32.142)	0.506 (0.308)	13.98 (2.754)	184 (84.4)	44 (6.9)	56 (13.2)	28.929 (97.689)
50% of Pull at Maximum Power—Two Hours 6th (2-2) Gear											
80.89 (60.32)	5358 (23.83)	5.66 (9.11)	2207	2.19	6.605 (25.003)	0.578 (0.352)	12.25 (2.412)	181 (82.8)	39 (3.6)	40 (4.2)	29.075 (98.182)
50% of Pull at Reduced Engine Speed—Two Hours 8th (2-4) Gear											
80.99 (60.39)	5361 (23.85)	5.66 (9.12)	1409	2.25	5.651 (21.393)	0.494 (0.300)	14.33 (2.823)	176 (80.0)	41 (4.7)	42 (5.3)	29.025 (98.013)
MAXIMUM POWER IN SELECTED GEARS											
131.63 (98.16)	19311 (85.90)	2.56 (4.11)	2118	13.82	3rd (1-3) Gear			187 (85.8)	34 (1.1)	37 (2.8)	28.700 (96.916)
145.41 (108.43)	14799 (65.83)	3.68 (5.93)	2101	5.51	4th (1-4) Gear			195 (90.3)	51 (10.6)	70 (21.1)	28.690 (96.882)
151.93 (113.30)	12358 (54.97)	4.61 (7.42)	2100	4.15	5th (2-1) Gear			195 (90.3)	51 (10.6)	69 (20.6)	28.700 (96.916)
151.96 (113.31)	10728 (47.72)	5.31 (8.55)	2100	3.51	6th (2-2) Gear			195 (90.6)	51 (10.6)	70 (21.1)	28.710 (96.949)
150.88 (112.51)	8951 (39.81)	6.32 (10.17)	2100	2.94	7th (2-3) Gear			195 (90.6)	51 (10.6)	70 (21.1)	28.690 (96.882)
149.24 (111.29)	6628 (29.48)	8.44 (13.59)	2100	2.22	8th (2-4) Gear			192 (88.9)	51 (10.6)	70 (21.1)	28.680 (96.848)

Department of Agricultural Engineering

Dates of Test: November 14-27, 1979

Manufacturer: KHARKOV TRACTOR PLANT, Kharkov - 7 USSR

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 49.0 (rating taken from oil company's typical inspection data) **Specific gravity converted to 60°60° (15°/15°)** 0.8500 **Fuel weight** 7.078 lbs/gal *(0.848 kg/l)* **Oil SAE** 30 **API service classification** SB-SE/CA-CD **To motor** 4.849 gal *(18.353 l)* **Drained from motor** 3.941 gal *(14.917 l)* **Transmission and hydraulic lubricant** SAE 30 **Final drive lubricant** SAE 90 **Total time engine was operated** 41.0 hours.

ENGINE: Make USSR Diesel **Type** six cylinder vee with turbocharger **Model** SMD-62 **Serial No.** 79255514 **Crankshaft** lengthwise **Rated rpm** 2100 **Bore and stroke** 5.118" x 4.528" *(130 mm x 115 mm)* **Compression ratio** 15.0 to 1 **Displacement** 558 cu in *(9150 ml)* **Starting system** single cylinder, 2 cycle gasoline engine started by 12 volt motor or hand rope **Lubrication** pressure **Air cleaner** steel wool element with aspirator **Air compressor** direct engine drive **Oil filter** full flow centrifugal, separate washable element for turbocharger **Oil cooler** separate radiators for crankcase and transmission oil **Fuel filter** three paper elements in parallel, sediment bowl and strainer **Muffler** vertical **Cooling medium temperature control** two thermostats.

CHASSIS: Type Four-wheel drive **Serial No.** 128543 **Tread width** rear 73.2" *(1860 mm)* front 73.2" *(1860 mm)* **Wheel base** 112.6" *(2860 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 72.4" *(1839 mm)* Vertical distance above roadway 37.2" *(945 mm)* Horizontal distance from center of rear wheel tread 0.4" *(10 mm)* to the left **Hydraulic control system** direct engine drive with throw out lever (engaged during test) **Transmission** selective gear fixed ratio with partial (4) range operator controlled powershift **Advertised speeds mph (km/h)** first 2.1 *(3.4)* second 2.4 *(3.8)* third 2.8 *(4.6)* fourth 3.8 *(6.0)* fifth 4.6 *(7.4)* sixth 5.3 *(8.5)* seventh 6.3 *(10.1)* eighth 8.3 *(13.4)* ninth 10.1 *(16.2)* tenth 11.6 *(18.6)* eleventh 13.7 *(22.0)* twelfth 18.7 *(30.0)* reverse 3.8 *(6.1)*, 4.4 *(7.0)*, 5.2 *(8.3)*, 6.9 *(11.1)* **Clutch** double dry disc, air power assisted, operated by foot pedal **Brakes** expanding shoe pneumatically operated by foot pedal **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 263.7" *(6.70 m)* left 263.7" *(6.70 m)* **Turning space diameter** (on concrete surface without brake) right 562" *(14.27 m)* left 562" *(14.27 m)* **Power take-off** 1000 rpm at 2050 engine rpm.

LUGGING ABILITY IN 6th (2-2) GEAR

Crankshaft Speed rpm	2100	1893	1676	1464	1256	1052
Pull—lbs *(kN)*	10728 *(47.72)*	11531 *(51.29)*	12686 *(56.43)*	13511 *(60.10)*	12416 *(55.23)*	10950 *(48.71)*
Increase in Pull %	0	7	18	26	16	2
Power—Hp *(kW)*	151.96 *(113.31)*	146.71 *(109.40)*	142.31 *(106.12)*	131.80 *(98.28)*	104.49 *(77.91)*	77.57 *(57.84)*
Speed—Mph *(km/h)*	5.31 *(8.55)*	4.77 *(7.68)*	4.21 *(6.77)*	3.66 *(5.89)*	3.16 *(5.08)*	2.66 *(4.28)*
Slip %	3.51	3.89	4.40	4.65	4.40	3.64

TRACTOR SOUND LEVEL WITH CAB	dB(A)
Maximum Available Power—Two Hours	87.0
75% of Pull at Maximum Power—Ten Hours	86.5
50% of Pull at Maximum Power—Two Hours	86.5
50% of Pull at Reduced Engine Speed—Two Hours	83.5
Bystander in 12th (3-4) gear	94.5

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 530-610/21.3-24P, 10, 18 *(125)*	Two 530-610/21.3-24P, 10, 18 *(125)*
Ballast	—Liquid (each)	560 lb *(254 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 530-610/21.3-24P, 10, 26 *(180)*	Two 530-610/21.3-24P, 10, 26 *(180)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	None	None
Height of Drawbar		15.5 in *(395 mm)*	15.5 in *(395 mm)*
Static Weight with Operator	—Rear	7955 lb *(3608 kg)*	6835 lb *(3100 kg)*
	—Front	11930 lb *(5411 kg)*	11930 lb *(5411 kg)*
	—Total	19885 lb *(9019 kg)*	18765 lb *(8511 kg)*

REPAIRS and ADJUSTMENTS: Previous to the Ten Hour Drawbar Test, cab insulation had to be removed from under the throttle linkage.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 151°F *(66.2°C)*. Six gears were chosen between 15% slip and 10 mph *(16.1 km/h)*. The pull in 3rd (1-3) was limited to avoid tractor bouncing.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1333.**

L. I. LEVITICUS
Engineer-in-Charge

G. W. STEINBRUEGGE
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

Belarus 1500 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
H. W. Ottoson, Director

NEBRASKA TRACTOR TEST 1334 — BELARUS 7100 DIESEL (K-701) 16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1003 rpm)								
269.62 (201.05)	1900	17.010 (64.392)	0.447 (0.272)	15.85 (3.122)	182 (83.1)	54 (12.1)	75 (23.9)	29.010 (97.962)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
236.57 (176.41)	1962	15.097 (57.150)	0.452 (0.275)	15.67 (3.087)	170 (76.9)	54 (12.5)	76 (24.2)	....
0.00 (0.00)	2102	4.849 (18.355)	....	....	173 (78.3)	55 (12.8)	76 (24.7)	....
122.29 (91.19)	2028	9.486 (35.907)	0.549 (0.334)	12.89 (2.540)	172 (77.8)	56 (13.1)	76 (24.4)	....
271.53 (202.48)	1900	17.001 (64.354)	0.442 (0.270)	15.97 (3.146)	182 (83.1)	54 (12.2)	74 (23.6)	....
62.54 (46.64)	2074	7.265 (27.500)	0.822 (0.500)	8.61 (1.696)	168 (75.6)	54 (12.2)	76 (24.2)	....
181.03 (134.99)	2002	12.190 (46.144)	0.477 (0.290)	14.85 (2.925)	172 (77.5)	54 (12.2)	74 (23.6)	....
Av 145.66 *Av (108.62)*	**2011**	**10.981** *(41.568)*	**0.554** *(0.325)*	**13.26** *(2.613)*	**173** *(78.2)*	**54** *(12.5)*	**75** *(24.1)*	....

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th (R5-P2) Gear											
249.69 (186.20)	15973 (71.05)	5.86 (9.43)	1899	3.87	16.848 (63.777)	0.478 (0.291)	14.82 (2.920)	175 (79.4)	35 (1.4)	42 (5.3)	29.010 (97.962)
75% of Pull at Maximum Power—Ten Hours 8th (R5-P2) Gear											
206.41 (153.92)	12401 (55.16)	6.24 (10.04)	2009	3.14	14.383 (54.444)	0.493 (0.300)	14.35 (2.827)	170 (76.6)	22 (−5.6)	23 (−5.0)	29.219 (98.668)
50% of Pull at Maximum Power—Two Hours 8th (R5-P2) Gear											
136.90 (102.09)	7995 (35.56)	6.42 (10.33)	2043	1.91	10.896 (41.247)	0.563 (0.343)	12.56 (2.475)	177 (80.6)	31 (−0.5)	34 (0.8)	28.940 (97.726)
50% of Pull at Reduced Engine Speed—Two Hours 12th (R3-P4) Gear											
137.68 (102.67)	8026 (35.70)	6.43 (10.35)	1409	1.95	9.042 (34.228)	0.465 (0.283)	15.23 (3.000)	178 (81.1)	35 (1.4)	40 (4.4)	28.980 (97.861)
MAXIMUM POWER IN SELECTED GEARS											
201.41 (150.19)	30845 (137.21)	2.45 (3.94)	1971	12.85	3rd (R1-P3) Gear			181 (82.5)	32 (0.0)	38 (3.3)	29.080 (98.199)
234.31 (174.73)	30139 (134.07)	2.92 (4.69)	1900	10.53	4th (R1-P4) Gear			177 (80.3)	33 (0.6)	39 (3.9)	29.080 (98.199)
259.15 (193.25)	22784 (101.35)	4.27 (6.86)	1899	5.57	5th (R2-P1) Gear			180 (82.2)	37 (2.8)	43 (6.1)	28.700 (96.916)
259.46 (193.48)	20367 (90.60)	4.78 (7.69)	1899	4.88	6th (R3-P1) Gear			171 (77.2)	37 (2.8)	43 (6.1)	28.690 (96.882)
252.73 (188.46)	18046 (80.27)	5.25 (8.45)	1896	4.19	7th (R2-P2) Gear			178 (81.1)	37 (2.8)	44 (6.7)	28.680 (96.848)
258.60 (192.84)	16523 (73.50)	5.87 (9.45)	1900	3.64	8th (R3-P2) Gear			172 (77.5)	35 (1.7)	42 (5.6)	29.000 (97.929)
252.74 (188.47)	14819 (65.92)	6.40 (10.29)	1899	3.24	9th (R2-P3) Gear			174 (78.9)	37 (2.8)	43 (6.1)	28.700 (96.916)
256.98 (191.63)	13521 (60.15)	7.13 (11.47)	1900	2.92	10th (R3-P3) Gear			174 (78.9)	37 (2.8)	43 (6.1)	28.700 (96.916)
258.99 (193.13)	12542 (55.79)	7.74 (12.46)	1900	2.76	11th (R2-P4) Gear			174 (78.9)	37 (2.8)	43 (6.1)	28.700 (96.916)
259.36 (193.41)	11292 (50.23)	8.61 (13.86)	1898	2.52	12th (R3-P4) Gear			180 (81.9)	37 (2.8)	43 (6.1)	28.700 (96.916)

Department of Agricultural Engineering

Dates of Test: November 17-30, 1979

Manufacturer: KIROV PLANT, Leningrad, USSR

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 49.0 (rating taken from oil company's typical inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8500 **Fuel weight** 7.078 lbs/gal *(0.848 kg/l)* **Oil SAE** 30 **API service classification** SB-SE/CA-CD **To motor** 9.518 gal *(36.029 l)* **Drained from motor** 8.216 gal *(31.100 l)* **Transmission and final drive lubricant** SAE 30 **Total time engine was operated** 40.5 hours

ENGINE: Make YAMZ Diesel **Type** twelve cylinder vee **Serial No.** 73193 **Crankshaft** lengthwise **Rated rpm** 1900 **Bore and stroke** 5.118" × 5.512" *(130 mm × 140 mm)* **Compression ratio** 16.5 to 1 **Displacement** 1360 cu in *(22300 ml)* **Starting system** 24 volt **Lubrication** pressure **Air cleaner** four paper elements in parallel with aspirator **Air compressor** direct engine drive **Oil filter** two fiber elements **Oil cooler** separate radiators for crankcase and transmission oil **Fuel filter** two steel mesh primary elements and two paper secondary elements **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermo-hydraulic fan.

CHASSIS: Type Four wheel drive **Serial No.** 705472 **Tread width** rear 83.3" *(2115 mm)* front 83.3" *(2115 mm)* **Wheel base** 126" *(3200 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 85.0" *(2160 mm)* Vertical distance above roadway 43.3" *(1100 mm)* Horizontal distance from center of rear wheel tread 0.4" *(10 mm)* to the left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (4) range operator controlled powershift **Advertised speeds mph (km/h)** first 1.8 *(2.9)* second 2.2 *(3.5)* third 2.6 *(4.2)* fourth 3.2 *(5.1)* fifth 4.4 *(7.1)* sixth 4.8 *(7.8)* seventh 5.3 *(8.6)* eighth 5.9 *(9.5)* ninth 6.4 *(10.3)* tenth 7.1 *(11.5)* eleventh 7.7 *(12.4)* twelfth 8.6 *(13.8)* thirteenth 11.9 *(19.2)* fourteenth 14.5 *(23.3)* fifteenth 17.4 *(28.0)* sixteenth 21.0 *(33.8)* reverse 3.2 *(5.1)*, 3.9 *(6.2)*, 4.6 *(7.4)*, 5.5 *(8.9)*, 8.6 *(13.8)*, 10.4 *(16.7)*, 12.6 *(20.2)*, 15.1 *(24.3)* **Clutch** multiple wet disc hydraulically operated by foot pedal **Brakes** expanding shoe pneumatically operated by foot pedal **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake applied) right 283" *(7.18 m)* left 283" *(7.18 m)* **Turning space diameter** (on concrete surface without brake applied) right 598" *(15.19 m)* left 598" *(15.19 m)* **Power take-off** 1003 rpm at 1900 engine rpm.

LUGGING ABILITY IN 8th (R3-P2) GEAR

Crankshaft Speed rpm	1900	1711	1517	1327	1134	947
Pull—lbs *(kN)*	16523 *(73.50)*	17514 *(77.91)*	18624 *(82.84)*	18704 *(83.20)*	17559 *(78.11)*	16029 *(71.30)*
Increase in Pull %	0	6	13	13	6	−3
Power—Hp *(kW)*	258.60 *(192.84)*	246.29 *(183.66)*	231.52 *(172.65)*	203.25 *(151.56)*	163.58 *(121.98)*	125.11 *(93.30)*
Speed—Mph *(km/h)*	5.87 *(9.45)*	5.27 *(8.49)*	4.66 *(7.50)*	4.07 *(6.56)*	3.49 *(5.62)*	2.93 *(4.71)*
Slip %	3.64	3.95	4.26	4.26	3.95	3.79

TRACTOR SOUND LEVEL WITH CAB	dB(A)
Maximum Available Power—Two Hours	90.5
75% of Pull at Maximum Power—Ten Hours	90.0
50% of Pull at Maximum Power—Two Hours	91.0
50% of Pull at Reduced Engine Speed—Two Hours	88.0
Bystander in 15th (R4-P3) gear	94.0

TIRES, BALLAST AND WEIGHT		Tested Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 720-665/28.1-26P 12; 18 *(125)*
Ballast	—Liquid (each)	None
	—Cast Iron (each)	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 720-665/28.1-26P 12; 24 *(165)*
Ballast	—Liquid (each)	None
	—Cast Iron (each)	None
Height of Drawbar		22 in *(560 mm)*
Static Weight with Operator	—Rear	11260 lb *(5108 kg)*
	Front	21200 lb *(9616 kg)*
	Total	32460 lb *(14724 kg)*

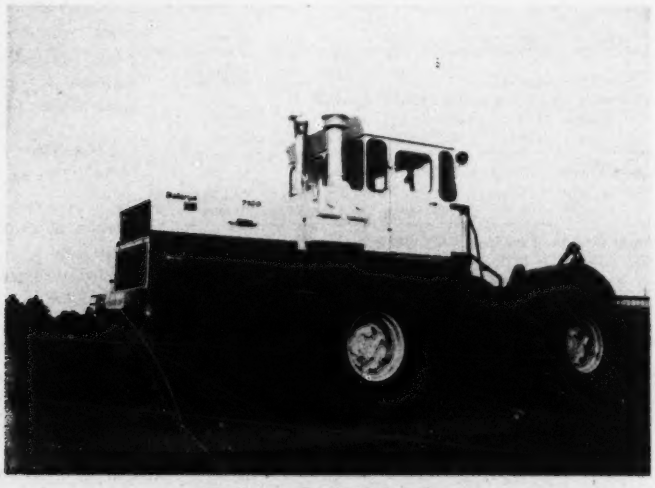
REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump return was 139°F *(59.3°C)*. Ten gears were chosen between 15% slip and 10 mph *(16.1 km/h)*. The pull in 3rd (R1-P3) gear was limited to avoid tractor bouncing. The PTO reduction case had to be cooled with a fan in order to prevent overheating. Variations in the Drawbar Test Data can be attributed to cycling of the cooling fan.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1334.**

LOUIS I. LEVITICUS
Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers



Belarus 7100 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
H. W. Ottoson, Director

NEBRASKA TRACTOR TEST 1335 — VERSATILE 895 DIESEL 12 SPEED

DRAWBAR PERFORMANCE AT 2100 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (2-3) Gear											
251.51 (187.55)	14609 (64.98)	6.46 (10.39)	2099	3.35	16.603 (62.849)	0.466 (0.284)	15.15 (2.984)	176 (79.7)	43 (6.1)	50 (9.7)	28.890 (97.557)
75% of Pull at Maximum Power—Ten Hours 7th (2-3) Gear											
212.55 (158.49)	11404 (50.73)	6.99 (11.25)	2257	2.58	15.488 (58.628)	0.515 (0.313)	13.72 (2.702)	171 (77.1)	42 (5.3)	44 (6.4)	28.663 (96.791)
50% of Pull at Maximum Power—Two Hours 7th (2-3) Gear											
147.20 (109.77)	7618 (33.89)	7.25 (11.66)	2323	1.83	12.727 (48.175)	0.611 (0.371)	11.57 (2.279)	174 (78.6)	43 (5.8)	44 (6.4)	28.840 (97.388)
50% of Pull at Reduced Engine Speed—Two Hours 10th (3-2) Gear											
147.00 (109.62)	7619 (33.89)	7.24 (11.64)	1372	1.79	9.434 (35.713)	0.453 (0.276)	15.58 (3.070)	176 (79.7)	36 (2.2)	37 (2.8)	28.610 (96.612)
MAXIMUM POWER IN SELECTED GEARS											
218.72 (163.10)	29402 (130.79)	2.79 (4.49)	2151	14.76	2nd (1-2) Gear			174 (78.6)	40 (4.4)	41 (5.0)	28.990 (97.895)
241.13 (179.81)	27572 (122.63)	3.28 (5.28)	2099	10.80	3rd (1-3) Gear			177 (80.6)	44 (6.7)	55 (12.8)	28.820 (97.321)
255.98 (190.89)	23999 (106.75)	4.00 (6.44)	2100	6.38	4th (1-4) Gear			177 (80.3)	44 (6.7)	55 (12.8)	28.830 (97.355)
259.34 (193.39)	20478 (91.09)	4.75 (7.64)	2101	4.91	5th (2-1) Gear			177 (80.3)	44 (6.7)	55 (12.8)	28.830 (97.355)
261.42 (194.94)	17603 (78.30)	5.57 (8.96)	2100	3.96	6th (2-2) Gear			178 (80.8)	44 (6.7)	54 (12.2)	28.840 (97.388)
261.63 (195.09)	15200 (67.61)	6.45 (10.39)	2099	3.31	7th (2-3) Gear			177 (80.3)	44 (6.7)	53 (11.7)	28.850 (97.422)
259.62 (193.60)	12921 (57.47)	7.53 (12.13)	2101	2.82	8th (2-4) Gear			177 (80.6)	44 (6.7)	55 (12.8)	28.810 (97.287)
256.22 (191.06)	10113 (44.98)	9.50 (15.29)	2099	2.08	9th (3-1) Gear			176 (80.0)	44 (6.7)	55 (12.8)	28.800 (97.253)

LUGGING ABILITY IN 7th (2-3) GEAR

Crankshaft Speed rpm	2099	1892	1678	1470	1257	1053
Pull—lbs (kN)	15200 (67.61)	17016 (75.69)	18920 (84.16)	20412 (90.80)	20270 (90.16)	18013 (80.13)
Increase in Pull %	0	12	24	34	33	19
Power—Hp (kW)	261.63 (195.09)	262.66 (195.86)	257.41 (191.95)	241.93 (180.41)	205.66 (153.36)	154.04 (114.87)
Speed—Mph (km/h)	6.45 (10.39)	5.79 (9.32)	5.10 (8.21)	4.44 (7.15)	3.80 (6.12)	3.21 (5.16)
Slip %	3.31	3.88	4.36	4.99	4.83	4.20

TRACTOR SOUND LEVEL WITH CAB	2100 RPM dB(A)	1900 RPM dB(A)	1750 RPM dB(A)
Maximum Available Power—Two Hours	83.5	83.5	82.0
75% of Pull at Maximum Power—Ten Hours	84.0	---	---
50% of Pull at Maximum Power—Two Hours	83.0	---	---
50% of Pull at Reduced Engine Speed—Two Hours	81.5	---	---
Bystander in 12th (3-4) gear	91.0	---	---

Department of Agricultural Engineering

Dates of Test: March 25 to April 3, 1980

Manufacturer: VERSATILE MANUFACTURING CO., 1260 Clarence Avenue, Winnipeg, Manitoba R3T 1T3

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 30 **API service classification** SB/SE-CA/CD **To motor** 7.024 gal *(26.586 l)* **Drained from motor** 6.020 gal *(22.786 l)* **Transmission and hydraulic lubricant** Esso Hydraul 56 or equivalent **Final drive lubricant** SAE 90 **Total time engine was operated** 54.0 hours.

ENGINE: Make Cummins Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 10894686 **Crankshaft** lengthwise **Rated rpm** 1750 to 2100 **Bore and stroke** 5.5" x 6.0" *(139.7 mm x 152.4 mm)* **Compression ratio** 14.1 to 1 **Displacement** 855 cu in *(14013 ml)* **Starting System** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two cartridges **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type Four-wheel drive with duals **Serial No.** 895 80 090029 **Tread width** rear 72" *(1829 mm)* to 129" *(3276 mm)* front 72" *(1829 mm)* to 129" *(3276 mm)* **Wheel base** 130" *(3302 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 84.0" *(2134 mm)* Vertical distance above roadway 42.0" *(1067 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 2.6 *(4.2)* second 3.0 *(4.9)* third 3.5 *(5.6)* fourth 4.1 *(6.6)* fifth 4.7 *(7.6)* sixth 5.5 *(8.9)* seventh 6.3 *(10.2)* eighth 7.3 *(11.8)* ninth 9.2 *(14.8)* tenth 10.7 *(17.2)* eleventh 12.3 *(19.8)* twelfth 14.3 *(23.0)* reverse 3.4 *(5.4)*, 3.9 *(6.3)*, 4.5 *(7.3)*, 5.2 *(8.4)* **Clutch** two dry discs operated by foot pedal **Brakes** dual caliper disc hydraulically operated by foot pedal or mechanically by hand lever **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 239" *(6.07 m)* left 239" *(6.07 m)* **Turning space diameter** (on concrete surface without brake) right 490" *(12.45 m)* left 490" *(12.45 m)* **Power take-off** none.

DRAWBAR PERFORMANCE AT 1900 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (2-3) Gear											
255.07 (190.21)	16462 (73.23)	5.81 (9.35)	1900	3.72	15.895 (60.169)	0.440 (0.268)	16.05 (3.161)	176 (80.0)	42 (5.3)	44 (6.7)	28.905 (97.608)
MAXIMUM POWER IN SELECTED GEARS											
228.00 (170.02)	29413 (130.83)	2.91 (4.68)	1953	14.95	3rd (1-3) Gear			175 (79.4)	40 (4.4)	41 (5.0)	28.990 (97.895)
248.47 (185.29)	26453 (117.67)	3.52 (5.67)	1899	8.90	4th (1-4) Gear			178 (81.1)	44 (6.7)	55 (12.8)	28.820 (97.321)
259.20 (193.28)	22859 (101.68)	4.25 (6.84)	1900	5.84	5th (2-1) Gear			178 (81.1)	44 (6.7)	55 (12.8)	28.830 (97.355)
261.89 (195.29)	19610 (87.23)	5.01 (8.06)	1901	4.44	6th (2-2) Gear			178 (81.1)	44 (6.7)	54 (12.2)	28.840 (97.388)
263.21 (196.28)	16998 (75.61)	5.81 (9.35)	1899	3.88	7th (2-3) Gear			177 (80.3)	44 (6.7)	54 (12.2)	28.840 (97.388)
263.33 (196.37)	14548 (64.71)	6.79 (10.92)	1900	3.15	8th (2-4) Gear			177 (80.6)	44 (6.7)	55 (12.8)	28.810 (97.287)
261.69 (195.14)	11442 (50.89)	8.58 (13.80)	1900	2.41	9th (3-1) Gear			177 (80.3)	44 (6.7)	55 (12.8)	28.800 (97.253)

DRAWBAR PERFORMANCE AT 1750 RPM

Maximum Available Power—Two Hours 7th (2-3) Gear											
253.68 (189.17)	17833 (79.32)	5.33 (8.39)	1750	4.20	15.311 (57.958)	0.426 (0.259)	16.57 (3.264)	173 (78.3)	42 (5.6)	45 (7.2)	28.890 (97.557)
MAXIMUM POWER IN SELECTED GEARS											
258.77 (192.96)	18193 (80.92)	5.33 (8.58)	1750	4.12	7th (2-3) Gear			173 (78.3)	42 (5.6)	45 (7.2)	28.930 (97.692)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	--No., size, ply & psi (kPa)	Four 24.5-32; 10; inner 16 (110); outer 14 (95)	Four 24.5-32; 10; inner 16 (110); outer 14 (95)
Ballast	—Liquid (each inner)	1755 lb (796 kg)	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi (kPa)	Four 24.5-32; 10; inner 16 (110); outer 14 (95)	Four 24.5-32; 10; inner 16 (110); outer 14 (95)
Ballast	—Liquid (each inner)	2185 lb (991 kg)	None
	—Cast Iron (each)	None	None
Height of Drawbar		19 in (485 mm)	19 in (485 mm)
Static Weight with Operator—Rear		13070 lb (5929 kg)	9560 lb (4336 kg)
Front		19430 lb (8813 kg)	15060 lb (6831 kg)
Total		32500 lb (14742 kg)	24620 lb (11167 kg)

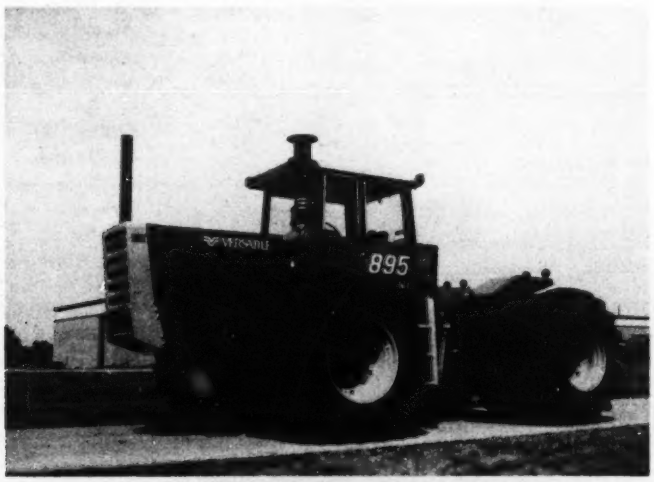
REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 120°F (48.9°C). Eight gears were chosen between 15% slip and 10 mph (16.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1335.**

L. I. LEVITICUS
Engineer-in-Charge

G. W. STEINBRUEGGE
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers



Versatile 895 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1336 — INTERNATIONAL 686 DIESEL 10 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—543 rpm)								
66.36 (49.49)	2000	4.131 (15.636)	0.440 (0.267)	16.07 (3.165)	193 (89.7)	58 (14.5)	75 (23.9)	28.733 (97.028)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
59.91 (44.68)	2124	3.806 (14.408)	0.449 (0.273)	15.74 (3.101)	190 (87.8)	58 (14.2)	74 (23.6)	....
0.00 (0.00)	2198	1.236 (4.680)	....	....	180 (82.5)	58 (14.4)	75 (23.9)	....
30.62 (22.83)	2171	2.447 (9.263)	0.564 (0.343)	12.51 (2.463)	186 (85.3)	58 (14.4)	75 (23.9)	....
66.49 (49.58)	2000	4.142 (15.679)	0.440 (0.268)	16.05 (3.162)	194 (90.0)	58 (14.4)	75 (23.9)	....
15.46 (11.53)	2191	1.827 (6.915)	0.834 (0.507)	8.47 (1.668)	182 (83.3)	58 (14.4)	75 (23.9)	....
45.47 (33.91)	2150	3.101 (11.739)	0.482 (0.293)	14.66 (2.889)	187 (86.1)	58 (14.4)	75 (23.9)	....
Av **36.33**	**2139**	**2.760**	**0.537**	**13.16**	**186**	**58**	**75**	**28.737**
Av (27.09)		(10.447)	(0.326)	(2.593)	(85.8)	(14.4)	(23.8)	(97.039)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (3 DD) Gear											
57.71 (43.03)	4266 (18.97)	5.07 (8.16)	2000	5.85	4.142 (15.679)	0.507 (0.308)	13.93 (2.743)	185 (85.0)	44 (6.7)	54 (11.9)	29.050 (98.097)
75% of Pull at Maximum Power—Ten Hours 7th (3 DD) Gear											
47.60 (35.50)	3255 (14.48)	5.48 (8.83)	2124	4.20	3.586 (13.575)	0.532 (0.324)	13.27 (2.615)	185 (84.9)	48 (9.1)	62 (16.8)	28.555 (96.426)
50% of Pull at Maximum Power—Two Hours 7th (3 DD) Gear											
32.66 (24.36)	2180 (9.70)	5.62 (9.04)	2148	2.99	2.832 (10.721)	0.612 (0.372)	11.53 (2.272)	182 (83.1)	46 (7.5)	57 (13.6)	29.020 (97.996)
50% of Pull at Reduced Engine Speed—Two Hours 8th (4 DD) Gear											
32.41 (24.17)	2160 (9.61)	5.63 (9.05)	1519	2.77	2.478 (9.380)	0.540 (0.328)	13.08 (2.576)	183 (83.6)	39 (3.9)	44 (6.4)	28.775 (97.169)
MAXIMUM POWER IN SELECTED GEARS											
52.18 (38.91)	8043 (35.78)	2.43 (3.92)	2119	14.87	2nd (1 DD) Gear			186 (85.6)	49 (9.4)	65 (18.3)	28.580 (96.510)
53.08 (39.58)	7667 (34.11)	2.60 (4.18)	2000	12.66	3rd (2 TA) Gear			187 (86.1)	49 (9.4)	65 (18.3)	28.580 (96.510)
55.78 (41.60)	6362 (28.30)	3.29 (5.29)	1999	9.58	4th (3 TA) Gear			187 (85.8)	43 (6.1)	51 (10.6)	29.070 (98.165)
58.19 (43.39)	5352 (23.81)	4.08 (6.56)	2001	7.55	5th (2 DD) Gear			186 (85.3)	42 (5.6)	49 (9.4)	29.080 (98.199)
57.21 (42.66)	4430 (19.70)	4.84 (7.79)	2001	5.85	6th (4 TA) Gear			186 (85.6)	42 (5.6)	48 (8.9)	29.080 (98.199)
58.81 (43.85)	4339 (19.30)	5.08 (8.18)	2000	5.71	7th (3 DD) Gear			185 (85.0)	42 (5.6)	47 (8.3)	29.070 (98.165)
58.44 (43.58)	2994 (13.32)	7.32 (11.78)	2000	3.94	8th (4 DD) Gear			187 (85.8)	43 (6.1)	52 (11.1)	29.070 (98.165)

LUGGING ABILITY IN 7th (3 DD) GEAR

Crankshaft Speed rpm	2000	1799	1598	1399	1203	996
Pull—lbs (kN)	4339 (19.30)	4605 (20.48)	4845 (21.55)	4982 (22.16)	4628 (20.59)	4608 (20.50)
Increase in Pull %	0	6	12	15	7	6
Power—Hp (kW)	58.81 (43.85)	55.81 (41.61)	51.98 (38.76)	46.68 (34.81)	37.50 (27.97)	30.78 (22.95)
Speed—Mph (km/h)	5.08 (8.18)	4.54 (7.31)	4.02 (6.47)	3.51 (5.65)	3.04 (4.89)	2.50 (4.03)
Slip %	5.71	6.26	6.53	6.81	6.26	6.26

Department of Agricultural Engineering

Dates of Test: March 26 to April 16, 1980

Manufacturer: INTERNATIONAL HARVESTER CO., 401 North Michigan Avenue, Chicago, Illinois 60611

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 30 **API service classification** CA/CD-SC/SE **To motor** 2.844 gal *(10.765 l)* **Drained from motor** 2.650 gal *(10.030 l)* **Transmission and final drive lubricant** I.H. Hy-Tran Fluid **Total time engine was operated** 37.5 hours.

ENGINE Make International Diesel **Type** 6 cylinder vertical **Serial No.** 310DT2D080258* **Crankshaft** lengthwise **Rated rpm** 2000 **Bore and stroke** 3.875" × 4.375" *(98.4 mm × 111.1 mm)* **Compression ratio** 15.1 to 1 **Displacement** 310 cu in *(5080 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow paper cartridge **Oil cooler** radiator for hydraulic and transmission oil **Fuel filter** two paper elements **Muffler** vertical **Cooling medium temperature control** one thermostat

CHASSIS: Type standard **Serial No.** 2450176U011253* **Tread width** rear 50" *(1270 mm)* to 96" *(2438 mm)* front 56" *(1422 mm)* to 82" *(2082 mm)* **Wheel base** 109" *(2616 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 32.0" *(813 mm)* Vertical distance above roadway 35.2" *(895 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Advertised speeds mph (km/h)** first 1.8 *(2.3)* second 2.7 *(4.3)* third 2.9 *(4.7)* fourth 3.6 *(5.8)* fifth 4.3 *(6.9)* sixth 5.1 *(8.2)* seventh 5.3 *(8.5)* eighth 7.5 *(12.1)* ninth 11.4 *(18.3)* tenth 16.9 *(27.2)* reverse 2.0 *(3.2)*, 3.0 *(4.8)* **Clutch** single dry disc operated by foot pedal **Brakes** double dry disc operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 144" *(3.66 m)* left 144" *(3.66 m)* (on concrete surface without brake) right 165" *(4.19 m)* left 165" *(4.19 m)* **Turning space diameter** (on concrete surface with brake applied) right 298" *(7.57 m)* left 298" *(7.57 m)* (on concrete surface without brake) right 339" *(8.61 m)* left 339" *(8.61 m)* **Power take-off** 543 rpm at 2000 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump return was 142°F *(61.2°C)*. Seven gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	96.0
75% of Pull at Maximum Power—Ten Hours	96.5
50% of Pull at Maximum Power—Two Hours	95.5
50% of Pull at Reduced Engine Speed—Two Hours	94.0
Bystander in 10th (5DD) Gear	92.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4-34;6; 16 *(110)*	Two 18.4-34; 6; 16 *(110)*
Ballast	—Liquid (each)	1180 lb *(535 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 9.5L-15; 6; 36 *(250)*	Two 9.5L-15; 6; 36 *(250)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	None	None
Height of drawbar		18 in *(460 mm)*	18 in *(460 mm)*
Static weight with operator—Rear		7910 lb *(3588 kg)*	5550 lb *(2518 kg)*
	Front	2430 lb *(1102 kg)*	2430 lb *(1102 kg)*
	Total	10340 lb *(4690 kg)*	7980 lb *(3620 kg)*

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1336.**

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

International 686 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1337 — INTERNATIONAL HYDRO 86 DIESEL

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—652 rpm)								
70.89 (52.86)	2400	5.298 (20.055)	0.526 (0.320)	13.38 (2.636)	194 (90.2)	67 (19.3)	75 (23.8)	28.917 (97.647)
Standard Power Take-off Speed (540 rpm)—One Hour								
66.64 (49.69)	1988	4.700 (17.791)	0.497 (0.302)	14.18 (2.793)	200 (93.3)	67 (19.5)	75 (23.7)	28.900 (97.591)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
63.81 (47.58)	2542	4.994 (18.904)	0.551 (0.335)	12.77 (2.317)	193 (89.2)	68 (20.0)	75 (23.9)	....
0.00 (0.00)	2669	2.135 (8.082)	....	....	179 (81.7)	68 (19.7)	75 (23.9)	....
32.89 (24.53)	2620	3.426 (12.969)	0.733 (0.446)	9.60 (1.891)	185 (85.0)	68 (20.0)	75 (23.9)	....
70.83 (52.82)	2400	5.301 (20.066)	0.527 (0.321)	13.36 (2.632)	196 (90.8)	69 (20.3)	76 (24.2)	....
16.62 (12.39)	2649	2.766 (10.470)	1.172 (0.713)	6.01 (1.183)	181 (82.8)	69 (20.6)	75 (23.9)	....
48.62 (36.26)	2582	4.134 (15.649)	0.599 (0.364)	11.76 (2.317)	189 (87.2)	70 (20.8)	76 (24.4)	....
Av 38.79 (28.93)	**2577**	**3.793** (14.358)	**0.688** (0.419)	**10.23** (2.015)	**187** (86.1)	**68** (20.2)	**75** (24.1)	**28.843** (97.400)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours, Speed Setting — 4.0 MPH Lo Range											
52.49 (39.14)	4868 (21.65)	4.04 (6.51)	2399	6.37	5.291 (20.029)	0.710 (0.432)	9.92 (1.954)	198 (91.9)	69 (20.3)	75 (23.6)	28.750 (97.084)
75% of Pull at Maximum Power—Ten Hours, Speed Setting—4.0 MPH Lo Range											
44.13 (32.91)	3780 (16.81)	4.38 (7.05)	2551	4.65	4.620 (17.489)	0.737 (0.448)	9.55 (1.882)	196 (90.9)	72 (22.1)	85 (29.3)	28.658 (96.774)
50% of Pull at Maximum Power—Two Hours, Speed Setting—4.0 MFH Lo Range											
31.47 (23.46)	2524 (11.23)	4.67 (7.52)	2589	3.11	3.817 (14.451)	0.854 (0.520)	8.24 (1.624)	191 (88.3)	72 (22.2)	83 (28.1)	28.695 (96.899)
50% of Pull at Reduced Engine Speed—Two Hours, Speed Setting—8.42 MPH Hi Range at 2400 Engine RPM											
31.50 (23.49)	2525 (11.23)	4.68 (7.53)	1358	3.25	2.770 (10.485)	0.619 (0.377)	11.37 (2.240)	191 (88.1)	61 (15.8)	68 (19.7)	28.915 (97.642)
MAXIMUM POWER AT SELECTED TRAVEL SPEEDS											
48.06 (35.83)	8815 (39.21)	2.04 (3.29)	2403	14.97	The infinitely		Lo R.	192 (88.6)	58 (14.4)	61 (16.1)	28.890 (97.557)
52.66 (39.27)	6546 (29.12)	3.02 (4.86)	2399	8.71	variable drive		Lo R.	196 (91.1)	59 (15.0)	67 (19.4)	28.830 (97.354)
53.69 (40.03)	5662 (25.19)	3.56 (5.72)	2400	7.32	control was set		Lo R.	196 (91.1)	58 (14.4)	66 (18.9)	28.840 (97.388)
54.10 (40.34)	5039 (22.41)	4.03 (6.48)	2398	6.44	by the		Lo R.	196 (91.1)	57 (13.9)	65 (18.3)	28.850 (97.422)
53.88 (40.17)	4430 (19.71)	4.56 (7.34)	2399	5.68	manufacturer		Lo R.	197 (91.4)	60 (15.6)	69 (20.6)	28.830 (97.355)
53.41 (39.83)	3960 (17.61)	5.06 (8.14)	2399	4.91	to give the		Lo R.	196 (91.1)	62 (16.7)	70 (21.1)	28.820 (97.321)
52.26 (38.97)	3524 (15.68)	5.56 (8.95)	2398	4.34	travel speeds		Lo R.	196 (91.1)	62 (16.7)	70 (21.1)	28.820 (97.321)
51.12 (38.12)	3155 (14.03)	6.08 (9.78)	2400	3.91	shown.		Hi R.	197 (91.4)	62 (16.7)	70 (21.1)	28.820 (97.321)
52.02 (38.79)	2959 (13.16)	6.59 (10.61)	2398	3.69			Hi R.	196 (91.1)	63 (17.2)	71 (21.7)	28.810 (97.287)
52.64 (39.23)	2815 (12.52)	7.01 (11.29)	2399	3.54			Hi R.	196 (91.1)	64 (17.8)	71 (21.7)	28.800 (97.253)
53.27 (39.72)	2643 (11.76)	7.56 (12.16)	2399	3.33			Hi R.	196 (90.8)	65 (18.3)	71 (21.7)	28.790 (97.220)
53.68 (40.03)	2484 (11.05)	8.10 (13.04)	2399	2.88			Hi R.	196 (91.1)	66 (18.9)	71 (21.7)	28.780 (97.186)

Department of Agricultural Engineering

Dates of Test: March 27 to September 17, 1980

Manufacturer: INTERNATIONAL HARVESTER COMPANY, 401 North Michigan Avenue, Chicago, IL 60611.

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's typical inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8455 **Fuel weight** 7.040 lbs/gal *(0.844 kg/l)* **Oil SAE** 30 **API service classification** CA/CD-SC/SE **To motor** 4.995 gal *(18.906 l)* **Drained from motor** 4.813 gal *(18.217 l)* **Transmission and final drive lubricant** I.H. Hy-Tran Fluid **Total time engine was operated** 73.5 hours

ENGINE Make International Diesel **Type** 6 cylinder vertical **Serial No.** 310DT2D095469* **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** 3.875" × 4.375" *(98.4 mm × 111.1 mm)* **Compression ratio** 15.1 to 1 **Displacement** 310 cu in *(5080 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow cartridge **Oil cooler** radiator for hydraulic and transmission oil **Fuel filter** two paper elements **Muffler** vertical **Cooling medium temperature control** one thermostat

CHASSIS: Type standard **Serial No.** 2680028U009039* **Tread width** rear 50" *(1270 mm)* to 96" *(2438 mm)* front 56" *(1422 mm)* to 82" *(2082 mm)* **Wheel base** 103" *(2616 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 32.3" *(820 mm)* Vertical distance above roadway 35.5" *(902 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** infinitely variable hydrostatic using a variable displacement pump and motor. A range transmission provides Hi and Lo range **Advertised speeds mph (km/h)** Lo range 0—8.0 *(0—12.9)*; Hi range 0—21.6 *(0—34.8)*; reverse Lo range 0—3.6 *(0—5.9)*, Hi range 0—9.8 *(0—15.8)* **Clutch** none-hydrostatic drive can be controlled by foot pedal **Brakes** double dry disc operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 144" *(3.66 m)* left 144" *(3.66 m)* (on concrete surface without brake) right 165" *(4.19 m)* left 165" *(4.19 m)* **Turning space diameter** (on concrete surface with brake applied) right 298" *(7.57 m)* left 298" *(7.57 m)* (on concrete surface without brake) right 339" *(8.61 m)* left 339" *(8.61 m)* **Power take-off** 540 rpm at 1988 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs. Fuel adjusted as shown below.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump return was 145°F *(62.8°C)*. Twelve travel speeds were chosen between 15% slip and 10 mph *(16.1*

LUGGING ABILITY IN SPEED SETTING—4.0 MPH Lo Range

Crankshaft Speed rpm	2398	2158	1918	1677	1440	1202
Pull—lbs *(kN)*	5039 *(22.41)*	5582 *(24.83)*	5926 *(26.36)*	5939 *(26.42)*	6086 *(27.07)*	6063 *(26.97)*
Increase in Pull %	0	11	18	18	21	20
Power—Hp *(kW)*	54.10 *(40.34)*	53.29 *(39.74)*	49.35 *(36.80)*	43.23 *(32.24)*	37.75 *(28.15)*	31.35 *(23.38)*
Speed—Mph *(km/h)*	4.03 *(6.48)*	3.58 *(5.76)*	3.12 *(5.03)*	2.73 *(4.39)*	2.33 *(3.74)*	1.94 *(3.12)*
Slip %	6.44	7.25	7.79	7.92	8.45	8.19

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	98.0
75% of Pull at Maximum Power—Ten Hours	97.5
50% of Pull at Maximum Power—Two Hours	96.0
50% of Pull at Reduced Engine Speed—Two Hours	95.0
Bystander in Hi Range	90.5

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4-34; 6; 16 *(110)*	Two 18.4-34; 6; 16 *(110)*
Ballast	—Liquid (each inner)	1275 lb *(577 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 9.5L-15; 6; 36 *(250)*	Two 9.5L-15; 6; 36 *(250)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	None	None
Height of drawbar		19 in *(485 mm)*	19 in *(485 mm)*
Static Weight with Operator—Rear		8220 lb *(3729 kg)*	5675 lb *(2575 kg)*
Front		2490 lb *(1129 kg)*	2490 lb *(1129 kg)*
Total		10710 lb *(4858 kg)*	8165 lb *(3704 kg)*

km/h). Drawbar horsepower did not meet manufacturer's claim upon completion of first test sequence. The fuel rate was readjusted, the oil changed at 39 hours and the test repeated.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1337.**

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

International Hydro 86 Diesel

NEBRASKA TRACTOR TEST 1338 — INTERNATIONAL 886 DIESEL 16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1159 rpm)								
86.57 (64.55)	2400	5.774 (21.856)	0.471 (0.287)	14.99 (2.934)	191 (88.3)	54 (12.2)	75 (23.9)	28.860 (97.456)
Standard Power Take-Off Speed (1000 rpm)—One Hour								
83.91 (62.57)	2071	5.241 (19.838)	0.441 (0.268)	16.01 (3.134)	195 (90.7)	54 (12.2)	75 (23.9)	28.825 (97.338)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
78.38 (58.45)	2554	5.535 (20.953)	0.499 (0.303)	14.16 (2.790)	188 (86.7)	54 (12.2)	75 (23.9)	....
0.00 (0.00)	2643	2.048 (7.751)	....	....	177 (80.6)	54 (12.2)	75 (23.9)	....
39.79 (29.67)	2604	3.573 (13.524)	0.634 (0.386)	11.14 (2.194)	183 (83.9)	54 (12.2)	75 (23.9)	....
86.61 (64.59)	2400	5.765 (21.822)	0.470 (0.286)	15.02 (2.960)	192 (89.2)	54 (12.2)	75 (23.9)	....
20.20 (15.06)	2622	2.766 (10.469)	0.967 (0.588)	7.30 (1.439)	178 (81.1)	54 (12.2)	75 (23.9)	....
59.29 (44.21)	2580	4.469 (16.917)	0.532 (0.324)	13.27 (2.613)	186 (85.8)	54 (12.2)	75 (23.9)	....
Av 47.38	**2567**	**4.026**	**0.600**	**11.77**	**184**	**54**	**75**	**28.780**
Av (35.33)		***(15.239)***	***(0.365)***	***(2.318)***	***(84.5)***	***(12.2)***	***(23.9)***	***(97.186)***

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th (1Hi TA) Gear											
75.08 (55.99)	5995 (26.67)	4.70 (7.56)	2400	5.05	5.788 (21.910)	0.544 (0.331)	12.97 (2.555)	189 (86.9)	50 (10.0)	63 (16.9)	28.850 (97.422)
75% of Pull at Maximum Power—Ten Hours 8th (1Hi TA) Gear											
61.45 (45.83)	4580 (20.37)	5.03 (8.10)	2536	3.70	5.034 (19.056)	0.578 (0.352)	12.21 (2.405)	180 (82.4)	41 (4.9)	50 (9.9)	28.856 (97.442)
50% of Pull at Maximum Power—Two Hours 8th (1Hi TA) Gear											
41.75 (31.13)	3049 (13.56)	5.13 (8.26)	2552	2.31	3.929 (14.875)	0.665 (0.404)	10.62 (2.093)	178 (80.8)	42 (5.3)	48 (8.9)	28.815 (97.304)
50% of Pull at Reduced Engine Speed—Two Hours 12th (2Hi DD) Gear											
41.89 (31.24)	3053 (13.59)	5.14 (8.27)	1499	2.35	3.115 (11.793)	0.525 (0.319)	13.45 (2.649)	180 (82.2)	42 (5.3)	48 (8.9)	28.850 (97.422)
MAXIMUM POWER IN SELECTED GEARS											
62.89 (46.89)	10807 (48.07)	2.18 (3.51)	2549	14.83	4th (2Lo DD) Gear			179 (81.4)	42 (5.6)	49 (9.4)	28.850 (97.422)
73.32 (54.67)	9280 (41.28)	2.96 (4.77)	2400	9.36	5th (3Lo TA) Gear			185 (85.0)	45 (7.2)	53 (11.7)	28.940 (97.726)
74.15 (55.30)	7081 (31.50)	3.93 (6.32)	2399	6.14	6th (3Lo DD) Gear			188 (86.4)	44 (6.7)	52 (11.1)	28.940 (97.726)
74.76 (55.75)	6837 (30.41)	4.10 (6.60)	2400	5.93	7th (4Lo TA) Gear			187 (85.8)	44 (6.7)	51 (10.6)	28.950 (97.760)
76.25 (56.86)	6095 (27.11)	4.69 (7.55)	2398	5.02	8th (1Hi TA) Gear			190 (87.5)	51 (10.6)	64 (17.8)	28.840 (97.388)
74.79 (55.77)	5243 (23.33)	5.35 (8.61)	2400	4.30	9th (4Lo DD) Gear			188 (86.4)	45 (7.2)	54 (12.2)	28.930 (97.692)
75.74 (56.48)	4657 (20.71)	6.10 (9.82)	2399	3.79	10th (1Hi DD) Gear			188 (86.4)	46 (7.8)	56 (13.3)	28.930 (97.692)
76.22 (56.84)	4511 (20.07)	6.34 (10.20)	2398	3.57	11th (2Hi TA) Gear			188 (86.7)	46 (7.8)	57 (13.9)	28.920 (97.659)
74.31 (55.41)	3396 (15.10)	8.21 (13.21)	2399	2.61	12th (2Hi DD) Gear			188 (86.7)	47 (8.3)	58 (14.4)	28.910 (97.625)

Department of Agricultural Engineering

Dates of Test: March 26 to April 10, 1980

Manufacturer: INTERNATIONAL HARVESTER CO., 401 North Michigan Avenue, Chicago, Illinois 60611

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 30 **API service classification** CA/CD-SC/SE **To motor** 2.606 gal *(9.865 l)* **Drained from motor** 2.505 gal *(9.482 l)* **Transmission and final drive lubricant** I.H. Hy-Tran Fluid **Total time engine was operated** 38.0 hours.

ENGINE Make International Diesel **Type** 6 cylinder vertical **Serial No.** 358DT2D050083* **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** 3.875" × 5.0625" *(98.4 mm × 128.6 mm)* **Compression ratio** 14.8 to 1 **Displacement** 358 cu in *(5868 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with automatic dust unloader **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for transmission and hydraulic oil **Fuel filter** two paper cartridges **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** one thermostat

CHASSIS: Type standard with duals **Serial No.** 2490206U15954* **Tread width** rear 66" *(1676 mm)* to 113.5" *(2883 mm)* front 60" *(1520 mm)* to 84" *(2130 mm)* **Wheel base** 104.8" *(2662 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 31.4" *(798 mm)* Vertical distance above roadway 40.5" *(1029 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Advertised speeds mph *(km/h)*** first 1.4 *(2.2)* second 1.8 *(2.8)* third 1.8 *(3.0)* fourth 2.4 *(3.8)* fifth 3.2 *(5.1)* sixth 4.1 *(6.6)* seventh 4.2 *(6.8)* eighth 4.8 *(7.8)* ninth 5.4 *(8.8)* tenth 6.2 *(10.0)* eleventh 6.4 *(10.3)* twelfth 8.2 *(13.2)* thirteenth 11.1 *(17.9)* fourteenth 14.3 *(23.0)* fifteenth 14.9 *(23.9)* sixteenth 19.1 *(30.7)* reverse 2.4 *(3.8)*, 3.0 *(4.9)*, 3.2 *(5.1)*, 4.0 *(6.5)*, 5.5 *(8.8)*, 7.0 *(11.3)*, 7.3 *(11.7)*, 9.4 *(15.1)* **Clutch** single dry disc hydraulically actuated and operated by foot pedal **Brakes** multiple wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 138" *(3.51 m)* left 138" *(3.51 m)* (on concrete surface without brake) right 175" *(4.44 m)* left 175" *(4.44 m)* **Turning space diameter** (on concrete surface with brake applied) right 286" *(7.26 m)* left 286" *(7.26 m)* (on concrete surface without brake) right 360" *(9.14 m)* left 360" *(9.14 m)* **Power take-off** 1000 rpm at 2071 engine rpm and 540 rpm at 2106 engine rpm.

LUGGING ABILITY IN 8th (1Hi TA) GEAR

Crankshaft Speed rpm	2398	2158	1916	1678	1444	1200
Pull—lbs *(kN)*	6095 *(27.11)*	6803 *(30.26)*	7380 *(32.83)*	7889 *(35.09)*	8014 *(35.65)*	7874 *(35.03)*
Increase in Pull %	0	12	21	29	31	29
Power—Hp *(kW)*	76.23 *(56.86)*	75.92 *(56.61)*	72.70 *(54.21)*	67.57 *(50.39)*	58.88 *(43.91)*	48.17 *(35.92)*
Speed—Mph *(km/h)*	4.69 *(7.55)*	4.18 *(6.73)*	3.69 *(5.94)*	3.21 *(5.17)*	2.76 *(4.43)*	2.29 *(3.69)*
Slip %	5.02	5.93	6.35	7.03	7.30	7.17

TRACTOR SOUND LEVEL WITH CAB dB(A)

Maximum Available Power—Two Hours	80.0
75% of Pull at Maximum Power—Ten Hours	79.0
50% of Pull at Maximum Power—Two Hours	79.5
50% of Pull at Reduced Engine Speed—Two Hours	80.0
Bystander in 16th (4Hi DD) gear	88.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 18.4-34; 6; 12 *(80)*	Four 18.4-34; 6; 12 *(80)*
Ballast	—Liquid (each inner)	815 lb *(370 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 9.5L-15; 6; 36 *(250)*	Two 9.5L-15; 6; 36 *(250)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	40 lb *(18 kg)*	None
Height of drawbar		19 in *(485 mm)*	19 in *(485 mm)*
Static Weight with Operator—Rear		10130 lb *(4595 kg)*	8500 lb *(3855 kg)*
	Front	3320 lb *(1506 kg)*	3240 lb *(1470 kg)*
	Total	13450 lb *(6101 kg)*	11740 lb *(5325 kg)*

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump return was 130°F *(54.4°C)*. Nine gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1338.**

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

International 886 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1339 — INTERNATIONAL 886 DIESEL 16 SPEED

(SERIAL NUMBERS 2490208U17026* and HIGHER)

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1158 rpm)								
90.56 (67.53)	2400	6.073 (22.987)	0.474 (0.288)	14.91 (2.938)	193 (89.3)	55 (12.8)	75 (23.8)	28.960 (97.794)
Standard Power Take-off Speed (1000 rpm)—One Hour								
88.23 (65.79)	2072	5.569 (21.082)	0.446 (0.271)	15.84 (3.121)	198 (92.2)	55 (12.7)	75 (23.9)	28.960 (97.794)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
82.04 (61.18)	2558	5.709 (21.613)	0.491 (0.299)	14.37 (2.831)	188 (86.9)	55 (12.8)	75 (23.9)	....
0.00 (0.00)	2655	2.026 (7.671)	....	....	177 (80.6)	55 (12.8)	75 (23.9)	....
41.97 (31.29)	2608	3.658 (13.846)	0.615 (0.374)	11.47 (2.260)	183 (83.9)	56 (13.1)	75 (23.9)	....
90.79 (67.70)	2402	6.092 (23.060)	0.474 (0.288)	14.90 (2.936)	193 (89.4)	56 (13.3)	75 (23.9)	....
21.17 (15.78)	2630	2.795 (10.581)	0.933 (0.567)	7.57 (1.492)	178 (81.1)	56 (13.3)	75 (23.9)	....
62.13 (46.33)	2586	4.592 (17.383)	0.522 (0.318)	13.53 (2.665)	186 (85.6)	56 (13.3)	75 (23.9)	....
Av **49.68**	**2573**	**4.145**	**0.589**	**11.98**	**184**	**56**	**75**	**28.950**
Av ***(37.05)***		***(15.692)***	***(0.358)***	***(2.361)***	***(84.6)***	***(13.1)***	***(23.9)***	***(97.760)***

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th (1Hi TA) Gear											
77.78 (58.00)	6221 (27.67)	4.69 (7.55)	2398	5.26	6.071 (22.982)	0.551 (0.335)	12.81 (2.524)	187 (85.8)	42 (5.3)	53 (11.7)	28.660 (96.781)
75% of Pull at Maximum Power—Ten Hours 8th (1Hi TA) Gear											
64.99 (48.46)	4814 (21.42)	5.06 (8.15)	2551	3.80	5.250 (19.873)	0.570 (0.347)	12.38 (2.439)	183 (84.1)	44 (6.9)	59 (14.8)	28.845 (97.405)
50% of Pull at Maximum Power—Two Hours 8th (1Hi TA) Gear											
44.21 (32.97)	3207 (14.27)	5.17 (8.32)	2573	2.64	4.071 (15.411)	0.650 (0.396)	10.86 (2.139)	179 (81.4)	42 (5.6)	55 (12.8)	28.640 (96.713)
50% of Pull at Reduced Engine Speed—Two Hours 12th (2Hi DD) Gear											
44.26 (33.01)	3209 (14.28)	5.17 (8.32)	1509	2.56	3.257 (12.329)	0.520 (0.316)	13.59 (2.677)	182 (83.3)	45 (7.2)	57 (13.6)	28.965 (97.810)
MAXIMUM POWER IN SELECTED GEARS											
63.76 (47.54)	10930 (48.62)	2.19 (3.52)	2552	14.77	4th (2 Lo DD) Gear			180 (81.9)	43 (6.1)	54 (12.2)	28.980 (97.861)
76.86 (57.32)	9740 (43.32)	2.96 (4.76)	2400	9.55	5th (3 Lo TA) Gear			182 (83.3)	39 (3.9)	47 (8.3)	28.720 (96.983)
77.67 (57.92)	7415 (32.98)	3.93 (6.32)	2400	6.27	6th (3 Lo DD) Gear			185 (85.0)	38 (3.3)	46 (7.8)	28.730 (97.017)
78.02 (58.18)	7135 (31.74)	4.10 (6.60)	2401	6.13	7th (4 Lo TA) Gear			186 (85.3)	38 (3.3)	45 (7.2)	28.740 (97.051)
80.13 (59.75)	6409 (28.51)	4.69 (7.55)	2398	5.22	8th (1 Hi TA) Gear			185 (85.0)	34 (1.1)	40 (4.4)	28.760 (97.118)
78.09 (58.23)	5482 (24.38)	5.34 (8.60)	2398	4.51	9th (4 Lo DD) Gear			186 (85.6)	39 (3.9)	48 (8.9)	28.710 (96.949)
78.48 (58.52)	4822 (21.45)	6.10 (9.82)	2401	3.93	10th (1 Hi DD) Gear			186 (85.6)	40 (4.4)	49 (9.4)	28.700 (96.916)
79.30 (59.13)	4692 (20.87)	6.34 (10.20)	2399	3.64	11th (2 Hi TA) Gear			187 (85.8)	40 (4.4)	50 (10.0)	28.700 (96.916)
77.24 (57.60)	3533 (15.72)	8.20 (13.19)	2398	2.82	12th (2 Hi DD) Gear			185 (85.0)	41 (5.0)	51 (10.6)	28.690 (96.882)

Department of Agricultural Engineering

Dates of Test: April 10 to 18, 1980

Manufacturer: INTERNATIONAL HARVESTER COMPANY, 401 North Michigan Avenue, Chicago, IL 60611.

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 30 **API service classification** CA/CD-SC/SE **To motor** 2.606 gal *(9.864 l)* **Drained from motor** 2.450 gal *(9.273 l)* **Transmission and final drive lubricant** I.H. Hy-tran fluid **Total time engine was operated** 33.5 hours

ENGINE Make International Diesel **Type** six cylinder vertical **Serial No.** 358DT2D050083* **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** 3.875" × 5.0625" *(98.4 mm × 128.6 mm)* **Compression ratio** 14.8 to 1 **Displacement** 358 cu in *(5868 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with automatic dust unloader **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for transmission and hydraulic oil **Fuel filter** two paper cartridges **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** one thermostat

CHASSIS: Type standard with duals **Serial No.** 2490206U15954* **Tread width** rear 66" *(1676 mm)* to 113.5" *(2883 mm)* front 60" *(1520 mm)* to 84" *(2130 mm)* **Wheel base** 104.8" *(2662 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 31.4" *(798 mm)* Vertical distance above roadway 40.5" *(1029 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Advertised speeds mph *(km/h)*** first 1.4 *(2.2)* second 1.8 *(2.8)* third 1.8 *(3.0)* fourth 2.4 *(3.8)* fifth 3.2 *(5.1)* sixth 4.1 *(6.6)* seventh 4.2 *(6.8)* eighth 4.8 *(7.8)* ninth 5.4 *(8.8)* tenth 6.2 *(10.0)* eleventh 6.4 *(10.3)* twelfth 8.2 *(13.2)* thirteenth 11.1 *(17.9)* fourteenth 14.3 *(23.0)* fifteenth 14.9 *(23.9)* sixteenth 19.1 *(30.7)* reverse 2.4 *(3.8)*, 3.0 *(4.9)*, 3.2 *(5.1)*, 4.0 *(6.5)*, 5.5 *(8.8)*, 7.0 *(11.3)*, 7.3 *(11.7)*, 9.4 *(15.1)* **Clutch** single dry disc hydraulically actuated and operated by foot pedal **Brakes** multiple wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 138" *(3.51 m)* left 138" *(3.51 m)* (on concrete surface without brake) right 175" *(4.44 m)* left 175" *(4.44 m)* **Turning space diameter** (on concrete surface with brake applied) right 286" *(7.26 m)* left 286" *(7.26 m)* (on

LUGGING ABILITY IN 8th (1 Hi TA) GEAR

Crankshaft Speed rpm	2396	2157	1921	1677	1435	1204
Pull—lbs (kN)	6409 (28.51)	7123 (31.68)	7744 (34.45)	8177 (36.38)	8293 (36.89)	8134 (36.18)
Increase in Pull %	0	11	21	28	29	27
Power—Hp (kW)	80.13 (59.75)	79.44 (59.24)	76.42 (56.98)	69.96 (52.17)	60.65 (45.23)	49.95 (37.25)
Speed—Mph (km/h)	4.69 (7.55)	4.18 (6.73)	3.70 (5.96)	3.21 (5.16)	2.74 (4.41)	2.30 (3.71)
Slip %	5.22	6.06	6.62	7.16	7.30	7.16

TRACTOR SOUND LEVEL WITH CAB

	dB(A)
Maximum Available Power—Two Hours	80.0
75% of Pull at Maximum Power—Ten Hours	79.5
50% of Pull at Maximum Power—Two Hours	78.5
50% of Pull at Reduced Engine Speed—Two Hours	79.0
Bystander in 16th (4 Hi DD) gear	89.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Four 18.4-34; 6; 12 (85)	Four 18.4-34; 6; 12 (85)
Ballast	—Liquid (each inner)	815 lb (370 kg)	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi (kPa)	Two 9.5L-15; 6; 36 (250)	Two 9.5L-15; 6; 36 (250)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	40 lb (18 kg)	None
Height of Drawbar		19 in (485 mm)	19 in (485 mm)
Static Weight with Operator—Rear		10130 lb (4595 kg)	8500 lb (3855 kg)
	Front	3320 lb (1506 kg)	3240 lb (1470 kg)
	Total	13450 lb (6101 kg)	11740 lb (5325 kg)

concrete surface without brake) right 360° (9.14 m) left 360° (9.14 m) **Power take-off** 1000 rpm at 2072 engine rpm and 540 rpm at 2106 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump return was 131°F (55.2°C). Nine gears were chosen between 15% slip and 10 mph (16.1 km/h) The performance figures on this report apply after tractor chassis Serial No. 2490208U17026*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1339.**

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

International 886 Diesel 16 Speed

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1340 — LEYLAND 482 DIESEL
ALSO LEYLAND 282 DIESEL
9 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—655 rpm)								
74.28 (55.39)	2200	4.748 (17.973)	0.451 (0.275)	15.64 (3.082)	222 (105.7)	59 (15.0)	75 (23.9)	29.153 (98.446)
Standard Power Take-off Speed (540 rpm)—One Hour								
70.86 (52.84)	1813	4.030 (15.255)	0.402 (0.244)	17.58 (3.464)	222 (105.5)	59 (15.0)	75 (24.0)	29.130 (98.368)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
64.25 (47.91)	2240	4.252 (16.097)	0.467 (0.284)	15.11 (2.977)	212 (100.3)	59 (15.0)	75 (23.9)	.....
0.00 (0.00)	2361	1.402 (5.307)	.....	.....	184 (84.4)	59 (15.0)	75 (23.9)	.....
33.07 (24.66)	2304	2.829 (10.710)	0.604 (0.368)	11.69 (2.302)	190 (88.1)	59 (15.0)	75 (23.9)	.....
75.76 (56.50)	2200	4.771 (18.059)	0.445 (0.270)	15.88 (3.128)	218 (103.3)	59 (15.0)	75 (23.9)	.....
16.73 (12.47)	2331	2.107 (7.976)	0.890 (0.541)	7.94 (1.564)	186 (85.8)	59 (15.0)	75 (23.9)	.....
48.92 (36.48)	2272	3.539 (13.395)	0.511 (0.311)	13.83 (2.724)	194 (89.7)	59 (15.0)	75 (23.9)	.....
Av 39.79	**2285**	**3.150**	**0.559**	**12.63**	**198**	**59**	**75**	**29.093**
Av (29.67)		*(11.924)*	*(0.340)*	*(2.488)*	*(91.9)*	*(15.0)*	*(23.9)*	*(98.244)*

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 5th (M-2) Gear											
58.20 (43.40)	3722 (16.55)	5.86 (9.44)	2201	7.50	4.584 (17.354)	0.556 (0.338)	12.70 (2.501)	235 (112.8)	60 (15.3)	87 (30.3)	28.845 (97.405)
75% of Pull at Maximum Power—Ten Hours 5th (M-2) Gear											
47.50 (35.42)	2939 (13.07)	6.06 (9.76)	2226	5.43	3.926 (14.861)	0.584 (0.355)	12.10 (2.384)	211 (99.3)	61 (15.9)	83 (28.1)	28.797 (97.243)
50% of Pull at Maximum Power—Two Hours 5th (M-2) Gear											
33.58 (25.04)	1987 (8.84)	6.34 (10.20)	2289	3.77	3.328 (12.597)	0.700 (0.426)	10.09 (1.988)	190 (87.5)	58 (14.4)	72 (21.9)	28.925 (97.675)
50% of Pull at Reduced Engine Speed—Two Hours 7th (H-1) Gear											
33.48 (24.97)	1976 (8.79)	6.35 (10.23)	1248	3.63	2.283 (8.643)	0.482 (0.293)	14.66 (2.889)	223 (105.8)	62 (16.7)	89 (31.7)	28.795 (97.236)
MAXIMUM POWER IN SELECTED GEARS											
46.22 (34.47)	7032 (31.28)	2.46 (3.97)	2243	14.87	2nd (L-2) Gear			191 (88.1)	46 (7.8)	56 (13.3)	28.920 (97.659)
56.29 (41.97)	6440 (28.65)	3.28 (5.27)	2200	12.91	3rd (L-3) Gear			194 (89.7)	46 (7.8)	56 (13.3)	28.920 (97.659)
60.31 (44.97)	5176 (23.02)	4.37 (7.03)	2201	10.44	4th (M-1) Gear			232 (111.1)	60 (15.6)	81 (27.2)	28.870 (97.490)
61.19 (45.63)	3919 (17.43)	5.86 (9.42)	2201	7.57	5th (M-2) Gear			224 (106.4)	57 (13.9)	71 (21.7)	28.860 (97.456)
60.66 (45.24)	2869 (12.76)	7.93 (12.76)	2201	5.57	6th (M-3) Gear			230 (109.7)	60 (15.6)	82 (27.8)	28.870 (97.490)

Department of Agricultural Engineering

Dates of Test: April 15-25, 1980

Manufacturer: LEYLAND VEHICLES LIMITED MLVD, Blackburn Road, Bathgate, West Lothian, Scotland.

FUEL, OIL AND TIME: **Fuel** No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's typical inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 20-20W **API service classification** SB/SE-CA/CD **To motor** 2.656 gal *(10.051 l)* **Drained from motor** 1.995 gal *(7.551 l)* **Transmission and final drive lubricant** SAE 20W30 **Total time engine was operated** 48.0 hours

ENGINE: **Make** Leyland Dsl **Type** four cylinder vertical with turbocharger **Serial No.** 498NT177659543 **Crankshaft** lengthwise **Rated rpm** 2200 **Bore and stroke** 3.858" × 4.921" *(98 mm × 125 mm)* **Compression ratio** 16.8 to 1 **Displacement** 230 cu in *(3771 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow element **Fuel filter** one paper cartridge and two gauze screens **Muffler** none **Cooling medium temperature control** one thermostat.

CHASSIS: **Type** Front wheel assist **Serial No.** 247589 **Tread width** rear 60" *(1520 mm)* to 80" *(2032 mm)* front 61" *(1549 mm)* to 73" *(1854 mm)* **Wheel base** 83.28" *(2115 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from centerline of rear wheels 32.9" *(835 mm)* Vertical distance above roadway 33.8" *(859 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 2.2 *(3.6)* second 2.9 *(4.6)* third 3.8 *(6.2)* fourth 5.0 *(8.0)* fifth 6.4 *(10.4)* sixth 8.5 *(13.7)* seventh 11.8 *(19.0)* eighth 15.3 *(24.6)* ninth 20.3 *(32.7)* reverse 3.3 *(5.2)*, 7.3 *(11.7)*, 17.3 *(27.8)* **Clutch** double dry disc hydraulically operated by foot pedal **Brakes** multiple dry disc hydraulically operated by two foot pedals which can be locked together and hand lever **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 176" *(4.47 m)* left 172" *(4.37 m)* (on concrete surface without brake) right 211" *(5.36 m)* left 208" *(5.29 m)* **Turning space diameter** (on concrete surface with brake applied) right 352" *(8.94 m)* left 344" *(8.74 m)* (on concrete surface without brake) right 422" *(10.71 m)* left 417" *(10.59 m)* **Power take-off** 540 rpm at 1813 engine rpm.

LUGGING ABILITY IN 5th (M-2) GEAR

Crankshaft Speed rpm	2201	1970	1761	1539	1315	1096
Pull—lbs (kN)	3919 (17.43)	4386 (19.51)	4673 (20.79)	4754 (21.15)	4656 (20.71)	4550 (20.24)
Increase in Pull %	0	12	19	21	19	16
Power—Hp (kW)	61.19 (45.63)	60.66 (45.24)	57.24 (42.68)	50.75 (37.84)	42.57 (31.74)	34.75 (25.91)
Speed—Mph (km/h)	5.86 (9.42)	5.19 (8.35)	4.59 (7.39)	4.00 (6.44)	3.43 (5.52)	2.86 (4.61)
Slip %	7.57	8.65	9.40	9.77	9.52	9.27

TRACTOR SOUND LEVEL WITH CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	83.5	85.0
75% of Pull at Maximum Power—Ten Hours	-	85.5
50% of Pull at Maximum Power—Two Hours	-	87.5
50% of Pull at Reduced Engine Speed—Two Hours	-	80.0
Bystander in 8th (H-2) gear	-	90.5

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 5th (M-2) Gear											
56.04 (41.79)	3417 (15.20)	6.15 (9.90)	2198	4.91	4.478 (16.952)	0.564 (0.343)	12.51 (2.465)	204 (95.6)	48 (8.9)	60 (15.6)	28.915 (97.642)
MAXIMUM POWER IN SELECTED GEARS											
48.99 (36.53)	9480 (42.17)	1.94 (3.12)	2240	14.92	1st (L-1) Gear			190 (87.8)	45 (7.2)	55 (12.8)	28.920 (97.659)
61.48 (45.85)	4964 (22.08)	4.64 (7.47)	2201	6.92	4th (M-1) Gear			232 (111.1)	59 (15.0)	77 (25.0)	28.870 (97.490)
61.38 (45.77)	3740 (16.64)	6.15 (9.90)	2203	5.01	5th (M-2) Gear			225 (107.2)	58 (14.4)	76 (24.4)	28.870 (97.490)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 16.9-34; 8; 16 (110)	Two 16.9-34; 8; 16 (110)
Ballast	—Liquid (each)	900 lb (408 kg)	None
	—Cast Iron (each)	425 lb (193 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 12.4/11-28; 6; 20 (140)	Two 12.4/11-28; 6; 20 (140)
Ballast	—Liquid (each)	400 lb (181 kg)	None
	—Cast Iron (each)	570 lb (259 kg)	None
Height of Drawbar		18.5 in (470 mm)	18.5 in (470 mm)
Static Weight with Operator—Rear		7140 lb (3239 kg)	4490 lb (2037 kg)
—Front		4860 lb (2204 kg)	2920 lb (1324 kg)
—Total		12000 lb (5443 kg)	7410 lb (3361 kg)

REPAIRS and ADJUSTMENTS: The bolts holding the rear wheel weights were retightened following the 50% drawbar fuel test.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 165°F (74.0°C). Five gears were chosen between 15% slip and 10 mph (16.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1340.**

LOUIS I. LEVITICUS
Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

Leyland 482 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1341 — LEYLAND 472 DIESEL
ALSO LEYLAND 272 DIESEL
9 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—655 rpm)								
63.52 (47.37)	2200	4.584 (17.351)	0.510 (0.310)	13.86 (2.730)	226 (107.9)	59 (14.9)	75 (24.0)	28.877 (97.512)
Standard Power Take-off Speed (540 rpm)—One Hour								
58.50 (43.62)	1813	3.908 (14.794)	0.472 (0.287)	14.97 (2.949)	230 (110.1)	59 (14.8)	76 (24.7)	28.875 (97.507)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
56.63 (42.23)	2308	3.900 (14.762)	0.486 (0.296)	14.52 (2.860)	216 (102.2)	59 (15.0)	79 (26.1)	....
0.00 (0.00)	2407	1.143 (4.326)	....	....	183 (83.9)	59 (15.0)	80 (26.7)	....
29.07 (21.67)	2368	2.396 (9.070)	0.582 (0.354)	12.13 (2.390)	190 (87.5)	59 (15.0)	82 (28.1)	....
63.67 (47.48)	2200	4.605 (17.432)	0.511 (0.311)	13.83 (2.724)	226 (107.8)	59 (15.0)	84 (28.6)	....
14.66 (10.93)	2388	1.784 (6.754)	0.860 (0.523)	8.21 (1.618)	186 (85.8)	59 (15.0)	84 (28.9)	....
43.01 (32.07)	2336	3.037 (11.498)	0.499 (0.303)	14.16 (2.790)	195 (90.6)	58 (14.7)	84 (29.2)	....
Av 34.51 *Av (25.73)*	**2335**	**2.811** *(10.640)*	**0.575** *(0.350)*	**12.28** *(2.418)*	**199** *(93.0)*	**59** *(15.0)*	**82** *(27.9)*	**28.863** *(97.467)*

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 4th (M-1) Gear											
51.49 (38.40)	4339 (19.30)	4.45 (7.16)	2200	8.87	4.549 (17.220)	0.624 (0.379)	11.32 (2.230)	217 (102.5)	46 (7.5)	60 (15.3)	28.840 (97.388)
75% of Pull at Maximum Power—Ten Hours 4th (M-1) Gear											
42.48 (31.68)	3347 (14.89)	4.76 (7.66)	2294	6.57	3.639 (13.776)	0.605 (0.368)	11.67 (2.299)	192 (89.0)	47 (8.6)	61 (16.2)	28.884 (97.537)
50% of Pull at Maximum Power—Two Hours 4th (M-1) Gear											
29.88 (22.28)	2239 (9.96)	5.00 (8.05)	2361	4.60	2.850 (10.788)	0.674 (0.410)	10.48 (2.065)	187 (85.8)	45 (7.2)	62 (16.4)	28.790 (97.220)
50% of Pull at Reduced Engine Speed—Two Hours 6th (M-3) Gear											
29.52 (22.02)	2212 (9.84)	5.01 (8.06)	1375	4.67	2.089 (7.906)	0.500 (0.304)	14.13 (2.784)	186 (85.6)	44 (6.4)	50 (10.0)	28.960 (97.794)
MAXIMUM POWER IN SELECTED GEARS											
47.88 (35.71)	7224 (32.13)	2.49 (4.00)	2263	14.93	2nd (L-2) Gear			192 (88.9)	43 (6.1)	48 (8.9)	28.950 (97.760)
51.74 (38.58)	5867 (26.10)	3.31 (5.32)	2200	12.28	3rd (L-3) Gear			208 (97.8)	43 (6.1)	56 (13.3)	28.880 (97.523)
52.92 (39.46)	4454 (19.81)	4.46 (7.17)	2200	8.84	4th (M-1) Gear			209 (98.1)	41 (5.0)	52 (11.1)	28.870 (97.490)
53.27 (39.72)	3377 (15.02)	5.91 (9.52)	2198	6.58	5th (M-2) Gear			205 (96.1)	43 (6.1)	56 (13.3)	28.880 (97.523)
51.99 (38.77)	2440 (10.85)	7.99 (12.86)	2199	4.91	6th (M-3) Gear			202 (94.4)	44 (6.7)	57 (13.9)	28.880 (97.523)

Department of Agricultural Engineering

Dates of Test: April 18-26, 1980

Manufacturer: LEYLAND VEHICLES LIMITED MLVD Blackburn Road, Bathgate, West Lothian, Scotland.

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's typical inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 20-20W **API service classification** SB/SE-CA/CC **To motor** 2.368 gal *(8.963 l)* **Drained from motor** 2.008 gal *(7.600 l)* **Transmission and final drive lubricant** SAE 20W30 **Total time engine was operated** 40.0 hours

ENGINE: Make Leyland Dsl **Type** Four cylinder vertical **Serial No.** 498NT/1560/75001 **Crankshaft** lengthwise **Rated rpm** 2200 **Bore and stroke** 3.858" × 4.921" *(98 mm × 125 mm)* **Compression ratio** 16.8 to 1 **Displacement** 230 cu in *(3771 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow cartridge **Fuel filter** one paper cartridge and two gauze screens **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type Front wheel assist **Serial No.** 247466 **Tread width** rear 60" *(1520 mm)* to 80" *(2032 mm)* front 61" *(1549 mm)* to 73" *(1854 mm)* **Wheel base** 83.28 *(2115 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from centerline of rear wheels 32.9" *(835 mm)* Vertical distance above roadway 33.8" *(858 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 2.2 *(3.6)* second 2.9 *(4.6)* third 3.8 *(6.1)* fourth 5.0 *(8.0)* fifth 6.4 *(10.3)* sixth 8.5 *(13.7)* seventh 11.8 *(19.0)* eighth 15.3 *(24.6)* ninth 20.3 *(32.7)* reverse 3.3 *(5.2)*, 7.3 *(11.7)*, 17.3 *(27.8)* **Clutch** double dry disc hydraulically operated by foot pedal **Brakes** multiple dry disc hydraulically operated by two foot pedals which can be locked together and hand lever **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 176" *(4.47 m)* left 172" *(4.37 m)* (on concrete surface without brake) right 211" *(5.36 m)* left 208" *(5.29 m)*. **Turning space diameter** (on concrete surface with brake applied) right 352" *(8.94 m)* left 344" *(8.74 m)* (on concrete surface without brake) right 422" *(10.71 m)* left 417" *(10.59 m)* **Power take-off** 540 rpm at 1813 engine rpm.

LUGGING ABILITY IN 4th (M-1) GEAR

Crankshaft Speed rpm	2200	1977	1756	1545	1313	1098
Pull—lbs *(kN)*	4454 *(19.81)*	4828 *(21.48)*	5170 *(23.00)*	5339 *(23.75)*	5404 *(24.04)*	5147 *(22.89)*
Increase in Pull %	0	8	16	20	21	16
Power—Hp *(kW)*	52.92 *(39.46)*	51.10 *(38.10)*	48.18 *(35.93)*	43.54 *(32.47)*	37.41 *(27.90)*	29.96 *(22.34)*
Speed—Mph *(km/h)*	4.46 *(7.17)*	3.97 *(6.39)*	3.49 *(5.62)*	3.06 *(4.92)*	2.60 *(4.18)*	2.18 *(3.51)*
Slip %	8.84	9.58	10.44	10.80	10.92	10.44

TRACTOR SOUND LEVEL WITH CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	85.5	84.5
75% of Pull at Maximum Power—Ten Hours	-	91.0
50% of Pull at Maximum Power—Two Hours	-	85.5
50% of Pull at Reduced Engine Speed—Two Hours	-	80.0
Bystander in 8th (H-2) gear	-	87.5

DRAWBAR PERFORMANCE
(Front Wheel Engaged)

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 4th (M-1) Gear											
51.22 *(38.20)*	4092 *(18.20)*	4.69 *(7.55)*	2200	5.86	4.514 *(17.086)*	0.622 *(0.379)*	11.35 *(2.236)*	221 *(105.0)*	45 *(7.2)*	60 *(15.6)*	28.795 *(97.236)*
MAXIMUM POWER IN SELECTED GEARS											
49.05 *(36.57)*	9458 *(42.07)*	1.94 *(3.13)*	2247	14.75	1st (L-1) Gear			195 *(90.6)*	43 *(6.1)*	48 *(8.9)*	28.950 *(97.760)*
52.94 *(39.48)*	5610 *(24.96)*	3.54 *(5.69)*	2199	7.90	3rd (L-3) Gear			213 *(100.3)*	43 *(6.1)*	56 *(13.3)*	28.880 *(97.523)*
52.65 *(39.26)*	4203 *(18.69)*	4.70 *(7.56)*	2200	5.62	4th (M-1) Gear			213 *(100.6)*	42 *(5.6)*	54 *(12.2)*	28.870 *(97.490)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 16.9-34; 8; 16 *(110)*	Two 16.9-34; 8; 16 *(110)*
Ballast	—Liquid (each)	900 lb *(408 kg)*	None
	—Cast Iron (each)	460 lb *(209 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 12.4/11-28; 6; 20 *(140)*	Two 12.4/11-28; 6; 20 *(140)*
Ballast	—Liquid (each)	400 lb *(182 kg)*	None
	—Cast Iron (each)	530 lb *(240 kg)*	None
Height of Drawbar		18.5 in *(470 mm)*	18.5 in *(470 mm)*
Static Weight with Operator—Rear		7210 lb *(3270 kg)*	4490 lb *(2037 kg)*
—Front		4780 lb *(2168 kg)*	2920 lb *(1324 kg)*
—Total		11990 lb *(5438 kg)*	7410 lb *(3361 kg)*

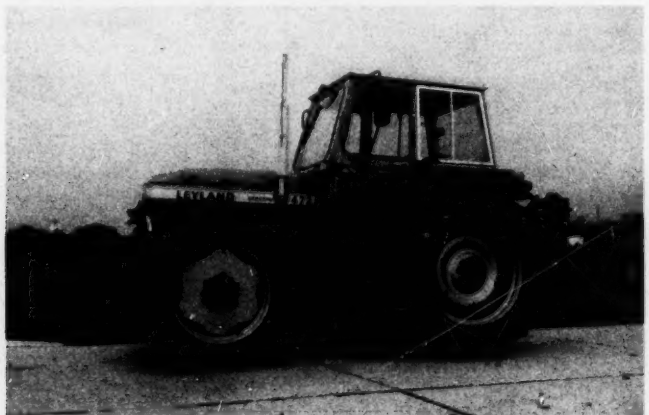
REPAIRS and ADJUSTMENTS: The PTO clutch linkage required adjustment during the varying load PTO test.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 158°F *(70.0°C)*. Five gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1341.**

LOUIS I. LEVITICUS
Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers



Leyland 472 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1342 — MASSEY FERGUSON 4800 DIESEL 18 SPEED—ALSO 12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1107 rpm)								
179.31 (133.71)	2600	12.683 (48.012)	0.500 (0.304)	14.14 (2.785)	182 (83.2)	55 (12.8)	75 (23.8)	28.930 (97.692)
Standard Power Take-Off Speed (1000 rpm)—One Hour								
172.88 (128.92)	2348	11.447 (43.332)	0.468 (0.284)	15.10 (2.975)	182 (83.3)	55 (12.7)	75 (23.9)	28.940 (97.726)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
158.95 (118.53)	2713	12.222 (46.264)	0.543 (0.330)	13.01 (2.562)	181 (82.8)	55 (12.8)	76 (24.4)	....
0.00 (0.00)	2800	5.833 (22.079)	....	....	168 (75.8)	54 (12.2)	76 (24.4)	....
80.78 (60.24)	2757	8.840 (33.464)	0.773 (0.470)	9.14 (1.800)	177 (80.6)	54 (12.2)	76 (24.4)	....
179.49 (133.85)	2600	12.664 (47.937)	0.498 (0.303)	14.17 (2.792)	182 (83.3)	55 (12.8)	77 (25.0)	....
40.77 (30.40)	2773	7.311 (27.675)	1.266 (0.770)	5.58 (1.099)	170 (76.9)	55 (12.8)	78 (25.6)	....
120.43 (89.81)	2736	10.459 (39.591)	0.613 (0.373)	11.52 (2.268)	180 (82.2)	55 (12.8)	78 (25.6)	....
Av 96.74	**2730**	**9.555**	**0.697**	**10.12**	**176**	**55**	**77**	**28.860**
Av (72.14)		*(36.168)*	*(0.424)*	*(1.995)*	*(80.3)*	*(12.6)*	*(24.9)*	*(97.456)*

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (2Lo Lo) Gear											
153.78 (114.68)	11958 (53.19)	4.82 (7.76)	2600	3.30	12.673 (47.974)	0.582 (0.354)	12.13 (2.390)	178 (81.1)	55 (12.8)	69 (20.3)	28.785 (97.203)
75% of Pull at Maximum Power—Ten Hours 7th (2Lo Lo) Gear											
126.43 (94.28)	9289 (41.32)	5.10 (8.21)	2730	2.36	11.778 (44.584)	0.658 (0.400)	10.73 (2.115)	175 (79.6)	49 (9.3)	67 (19.5)	28.753 (97.095)
50% of Pull at Maximum Power—Two Hours 7th (2Lo Lo) Gear											
85.84 (64.01)	6177 (27.48)	5.21 (8.39)	2765	1.65	10.231 (38.728)	0.842 (0.512)	8.39 (1.653)	156 (68.9)	50 (10.0)	57 (13.6)	28.800 (97.253)
50% of Pull at Reduced Engine Speed—Two Hours 11th (2Hi Int) Gear											
86.10 (64.20)	6183 (27.50)	5.22 (8.40)	1737	1.48	6.655 (25.193)	0.546 (0.332)	12.94 (2.548)	171 (77.2)	55 (12.5)	65 (18.3)	28.810 (97.287)
MAXIMUM POWER IN SELECTED GEARS											
146.60 (109.32)	25294 (112.51)	2.17 (3.50)	2602	11.64	1st (1Lo Lo) Gear			179 (81.4)	50 (10.0)	70 (21.1)	28.880 (97.523)
153.50 (114.47)	21031 (93.55)	2.74 (4.40)	2600	7.04	2nd (1Lo Int) Gear			179 (81.4)	50 (10.0)	69 (20.6)	28.890 (97.557)
155.92 (116.27)	19051 (84.74)	3.07 (4.94)	2599	5.85	3rd (1Hi Lo) Gear			180 (81.9)	50 (10.0)	69 (20.6)	28.890 (97.557)
155.75 (116.14)	18688 (83.13)	3.13 (5.03)	2600	5.70	4th (1Lo Hi) Gear			179 (81.4)	50 (10.0)	69 (20.6)	28.900 (97.591)
158.29 (118.04)	15894 (70.70)	3.73 (6.01)	2598	4.55	5th (1Hi Int) Gear			179 (81.7)	50 (10.0)	69 (20.6)	28.900 (97.591)
157.74 (117.63)	13971 (62.15)	4.23 (6.81)	2600	3.93	6th (1Hi Hi) Gear			179 (81.7)	49 (9.4)	68 (20.0)	28.910 (97.625)
159.08 (118.63)	12383 (55.08)	4.82 (7.75)	2601	3.38	7th (2Lo Lo) Gear			179 (81.4)	48 (8.9)	64 (17.8)	28.910 (97.625)
155.47 (115.93)	10030 (44.62)	5.81 (9.35)	2599	2.74	8th (2Lo Int) Gear			180 (81.9)	51 (10.6)	72 (22.2)	28.880 (97.523)
157.23 (117.25)	9123 (40.58)	6.46 (10.40)	2600	2.42	9th (2Hi Lo) Gear			180 (81.9)	51 (10.6)	72 (22.2)	28.870 (97.490)
156.87 (116.98)	8952 (39.82)	6.57 (10.58)	2601	2.26	10th (2Lo Hi) Gear			179 (81.7)	52 (11.1)	73 (22.8)	28.870 (97.490)
153.79 (114.68)	7396 (32.90)	7.80 (12.55)	2601	1.77	11th (2Hi Int) Gear			179 (81.4)	52 (11.1)	73 (22.8)	28.860 (97.456)
148.68 (110.87)	6337 (28.19)	8.80 (14.15)	2600	1.36	12th (2Hi Hi) Gear			180 (82.2)	53 (11.7)	74 (23.3)	28.860 (97.456)

Department of Agricultural Engineering

Dates of Test: April 17—May 3, 1980

Manufacturer: MASSEY FERGUSON, INC., 1901 Bell Avenue, Des Moines, Iowa 50315

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil** SAE 30 **API service classification** SB/SE-CA/CD **To motor** 7.083 gal *(26.810 l)* **Drained from motor** 6.043 gal *(22.874 l)* **Transmission, hydraulic, and final drive lubricant** MF Permatran **Total time engine was operated** 48.5 hours.

ENGINE Make Cummins Dsl **Type** eight cylinder vee **Serial No.** 10895047 **Crankshaft** lengthwise **Rated rpm** 2600 **Bore and stroke** 5.5" × 4.75" *(139.7 mm × 120.7 mm)* **Compression ratio** 15.5 to 1 **Displacement** 903 cu in *(14800 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow cartridge and one bypass cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** two thermostats.

CHASSIS: Type four wheel drive with duals **Serial No.** 9D 002156 **Tread width** rear 70" *(1778 mm)* to 126.5" *(3210 mm)* front 70" *(1778 mm)* to 126.5" *(3210 mm)* **Wheel base** 137" *(3480 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 83.8" *(2129 mm)* Vertical distance above roadway 49.1" *(1247 mm)* Horizontal distance from center of rear wheel tread 0.4" *(10 mm)* to the right **Hydraulic control system** direct engine drive **Transmission** Selective gear fixed ratio with partial (3) range operator controlled powershift **Advertised speeds mph *(km/h)*** first 2.4 *(3.8)* second 2.9 *(4.6)* third 3.2 *(5.1)* fourth 3.2 *(5.2)* fifth 3.8 *(6.1)* sixth 4.3 *(6.9)* seventh 4.8 *(7.8)* eighth 5.8 *(9.3)* ninth 6.4 *(10.3)* tenth 6.5 *(10.5)* eleventh 7.7 *(12.4)* twelfth 8.7 *(14.0)* thirteenth 10.7 *(17.2)* fourteenth 12.8 *(20.6)* fifteenth 14.2 *(22.9)* sixteenth 14.4 *(23.2)* seventeenth 17.0 *(27.4)* eighteenth 19.2 *(30.9)* reverse 3.2 *(5.2)*, 3.9 *(6.3)*, 4.3 *(7.0)*, 4.4 *(7.1)*, 5.2 *(8.3)*, 5.8 *(9.4)* **Clutch** multiple wet disc operated by foot pedal **Brakes** caliper disc hydraulically operated by foot pedal or mechanically by hand lever **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 246" *(6.25 m)* left 246" *(6.25 m)* **Turning space diameter** (on concrete surface without brake) right 516" *(13.10 m)* left 516" *(13.10 m)* **Power take-off** 1000 rpm at 2348 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 139°F *(59.5°C)*. Twelve gears were chosen up to 10 mph *(16.1 km/h)*.

LUGGING ABILITY IN 7th (2Lo Lo) GEAR

Crankshaft Speed rpm	2601	2352	2078	1814	1558	1299	1032	792
Pull—lbs *(kN)*	12383 *(55.08)*	13157 *(58.52)*	14595 *(64.92)*	15951 *(70.96)*	17305 *(76.97)*	18152 *(80.74)*	19164 *(85.25)*	18868 *(83.93)*
Increase in Pull %	0	6	18	29	40	47	55	52
Power—Hp *(kW)*	159.08 *(118.63)*	152.40 *(113.64)*	148.66 *(110.85)*	141.13 *(105.24)*	130.80 *(97.54)*	113.95 *(84.97)*	95.16 *(70.96)*	71.85 *(53.58)*
Speed—Mph *(km/h)*	4.82 *(7.75)*	4.34 *(6.99)*	3.82 *(6.15)*	3.32 *(5.34)*	2.83 *(4.56)*	2.35 *(3.79)*	1.86 *(3.00)*	1.43 *(2.30)*
Slip %	3.38	3.54	4.17	4.48	5.09	5.40	5.85	5.85

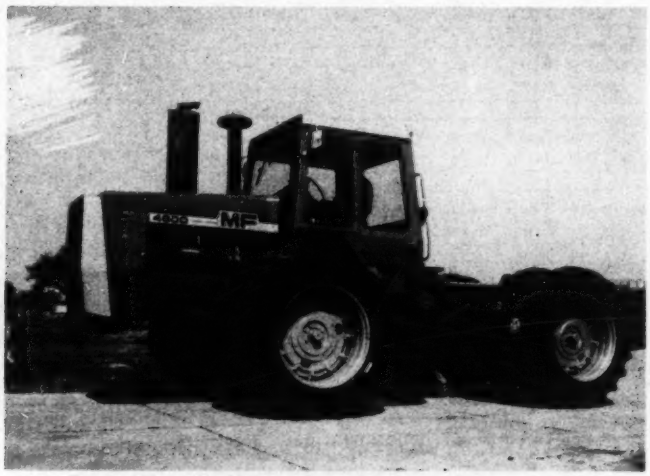
TRACTOR SOUND LEVEL WITH CAB	dB(A)
Maximum Available Power—Two Hours	82.0
75% of Pull at Maximum Power—Ten Hours	81.5
50% of Pull at Maximum Power—Two Hours	81.5
50% of Pull at Reduced Engine Speed—Two Hours	80.0
Bystander in 15th (3Hi Lo) gear	94.0

TIRES, BALLAST AND WEIGHT	Tested Without Ballast
Rear Tires—No., size, ply & psi *(kPa)*	Inner Two 23.1-34; 8; 16 *(110)* Outer Two 18.4-38; 8; 12 *(85)*
Ballast—Liquid (each)	None
—Cast Iron (each)	None
Front Tires—No., size, ply & psi *(kPa)*	Inner Two 23.1-34; 8; 16 *(110)* Outer Two 18.4-38; 8; 12 *(85)*
Ballast—Liquid (each)	None
—Cast Iron (each)	None
Height of drawbar	21.5 in *(545 mm)*
Static Weight with Operator—Rear	11950 lb *(5421 kg)*
—Front	18570 lb *(8423 kg)*
—Total	30520 lb *(13844 kg)*

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1342.**

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers



Massey Ferguson 4800 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1343 — MASSEY FERGUSON 4840 DIESEL 18 SPEED-ALSO 12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1108 rpm)								
210.67 (157.10)	2600	14.541 (55.044)	0.487 (0.297)	14.49 (2.854)	184 (84.3)	52 (11.3)	75 (23.8)	28.830 (97.355)
Standard Power Take-Off Speed (1000 rpm)—One Hour								
210.61 (157.05)	2348	13.526 (51.201)	0.454 (0.276)	15.57 (3.067)	185 (84.9)	52 (11.1)	75 (24.0)	28.815 (97.304)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
185.51 (138.34)	2695	13.738 (52.005)	0.523 (0.318)	13.50 (2.660)	180 (82.2)	52 (11.4)	76 (24.2)	....
0.00 (0.00)	2760	5.790 (21.918)	....	....	171 (77.2)	52 (11.1)	75 (23.9)	....
94.51 (70.48)	2741	9.626 (36.439)	0.719 (0.438)	9.82 (1.934)	174 (79.2)	52 (11.1)	75 (23.9)	....
210.69 (157.11)	2600	14.554 (55.093)	0.488 (0.297)	14.48 (2.852)	184 (84.2)	52 (11.1)	75 (23.9)	....
47.46 (35.39)	2752	7.723 (29.235)	1.149 (0.699)	6.15 (1.211)	172 (77.8)	52 (11.1)	75 (23.9)	....
140.58 (104.83)	2723	11.593 (43.884)	0.582 (0.354)	12.13 (2.389)	176 (80.0)	52 (11.1)	75 (23.9)	....
Av 113.13	**2712**	**10.504**	**0.656**	**10.77**	**176**	**52**	**75**	**28.800**
Av (84.36)		***(39.762)***	***(0.399)***	***(2.122)***	***(80.1)***	***(11.2)***	***(23.9)***	***(97.253)***

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (2Lo Lo) Gear											
179.65 (133.96)	13921 (61.92)	4.84 (7.79)	2598	4.01	14.479 (54.809)	0.569 (0.346)	12.41 (2.444)	179 (81.7)	56 (13.3)	71 (21.4)	28.915 (97.642)
75% of Pull at Maximum Power—Ten Hours 7th (2Lo Lo) Gear											
147.47 (109.97)	10823 (48.14)	5.11 (8.22)	2713	2.95	13.109 (49.623)	0.628 (0.382)	11.25 (2.216)	174 (79.1)	56 (13.6)	73 (22.8)	28.954 (97.773)
50% of Pull at Maximum Power—Two Hours 7th (2Lo Lo) Gear											
100.63 (75.04)	7234 (32.18)	5.22 (8.40)	2743	2.03	10.797 (40.872)	0.758 (0.461)	9.32 (1.836)	172 (77.5)	57 (13.9)	72 (22.2)	28.995 (97.912)
50% of Pull at Reduced Engine Speed—Two Hours 11th (2Hi Int) Gear											
101.41 (75.62)	7266 (32.32)	5.23 (8.42)	1726	1.91	7.346 (27.806)	0.512 (0.311)	13.81 (2.720)	172 (77.5)	58 (14.2)	78 (25.6)	29.000 (97.929)
MAXIMUM POWER IN SELECTED GEARS											
162.45 (121.14)	28191 (125.40)	2.16 (3.48)	2651	14.86	1st (1Lo Lo) Gear			173 (78.1)	55 (12.8)	65 (18.3)	28.980 (97.861)
176.06 (131.29)	24476 (108.88)	2.70 (4.34)	2600	9.64	2nd (1Lo Int) Gear			177 (80.6)	55 (12.8)	67 (19.4)	28.950 (97.760)
181.65 (135.46)	22271 (99.06)	3.06 (4.92)	2600	7.56	3rd (1Hi Lo) Gear			176 (80.0)	55 (12.8)	67 (19.4)	28.960 (97.794)
183.46 (136.81)	22119 (98.39)	3.11 (5.01)	2600	7.33	4th (1Lo Hi) Gear			176 (80.0)	55 (12.8)	66 (18.9)	28.960 (97.794)
183.06 (136.50)	18333 (81.55)	3.74 (6.03)	2596	5.53	5th (1Hi Int) Gear			176 (80.0)	55 (12.8)	66 (18.9)	28.950 (97.760)
185.01 (137.96)	16318 (72.58)	4.25 (6.84)	2599	4.68	6th (1Hi Hi) Gear			177 (80.3)	54 (12.2)	65 (18.3)	28.940 (97.726)
186.36 (138.97)	14440 (64.23)	4.84 (7.79)	2599	4.05	7th (2Lo Lo) Gear			180 (82.2)	57 (13.9)	72 (22.2)	28.910 (97.625)
183.76 (137.03)	11779 (52.40)	5.85 (9.41)	2598	3.17	8th (2Lo Int) Gear			178 (81.1)	55 (12.8)	68 (20.0)	28.950 (97.760)
183.94 (137.16)	10596 (47.13)	6.51 (10.48)	2598	2.85	9th (2Hi Lo) Gear			177 (80.3)	55 (12.8)	68 (20.0)	28.940 (97.726)
181.65 (135.46)	10288 (45.76)	6.62 (10.66)	2601	2.77	10th (2Lo Hi) Gear			178 (81.1)	55 (12.8)	69 (20.6)	28.940 (97.726)
179.09 (133.55)	8548 (38.02)	7.86 (12.64)	2600	2.28	11th (2Hi Int) Gear			178 (81.1)	55 (12.8)	69 (20.6)	28.930 (97.692)
180.43 (134.54)	7633 (33.95)	8.86 (14.27)	2599	2.03	12th (2Hi Hi) Gear			178 (80.8)	55 (12.8)	69 (20.6)	28.930 (97.692)

Department of Agricultural Engineering

Dates of Test: April 16—May 6, 1980

Manufacturer: MASSEY FERGUSON, INC., 1901 Bell Avenue, Des Moines, Iowa 50315

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 30 **API service classification** SB/SE-CA/CD **To motor** 7.261 gal *(27.481 l)* **Drained from motor** 6.374 gal *(24.126 l)* **Transmission, hydraulic, and final drive lubricant** MF Permatran **Total time engine was operated** 43.5 hours.

ENGINE Make Cummins Dsl **Type** eight cylinder vee **Serial No.** 10891424 **Crankshaft** lengthwise **Rated rpm** 2600 **Bore and stroke** 5.5" × 4.75" *(139.7 mm × 120.7 mm)* **Compression ratio** 15.5 to 1 **Displacement** 903 cu in *(14800 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow cartridge and one bypass cartridge **Oil cooler** engine coolant heat exchanger for crankcase, radiator for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** two thermostats

CHASSIS: Type four wheel drive with duals **Serial No.** 9D 002144 **Tread width** rear 70.0" *(1778 mm)* to 130.5" *(3314 mm)* front 70.0" *(1778 mm)* to 130.5" *(3314 mm)* **Wheel base** 137" *(3480 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 84.1" *(2136 mm)* Vertical distance above roadway 49.1" *(1247 mm)* Horizontal distance from center of rear wheel tread 0.3" *(8 mm)* to the right **Hydraulic control system** direct engine drive **Transmission** Selective gear fixed ratio with partial (3) range operator controlled power shift **Advertised speeds mph *(km/h)*** first 2.4 *(3.8)* second 2.9 *(4.6)* third 3.2 *(5.1)* fourth 3.2 *(5.2)* fifth 3.8 *(6.1)* sixth 4.3 *(6.9)* seventh 4.8 *(7.8)* eighth 5.8 *(9.3)* ninth 6.4 *(10.3)* tenth 6.5 *(10.5)* eleventh 7.7 *(12.4)* twelfth 8.7 *(14.0)* thirteenth 10.7 *(17.2)* fourteenth 12.8 *(20.6)* fifteenth 14.2 *(22.9)* sixteenth 14.4 *(23.2)* seventeenth 17.0 *(27.4)* eighteenth 19.2 *(30.9)* reverse 3.2 *(5.2)*, 3.9 *(6.3)*, 4.3 *(7.0)*, 4.4 *(7.1)*, 5.2 *(8.3)*, 5.8 *(9.4)* **Clutch** multiple wet disc operated by foot pedal **Brakes** caliper disc hydraulically operated by foot pedal or mechanically by hand lever **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 246" *(6.25 m)* left 246" *(6.25 m)* **Turning space diameter** (on concrete surface without brake) right 516" *(13.10 m)* left 516" *(13.10 m)* **Power take-off** 1000 rpm at 2348 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 138°F *(59.1°C)*. Twelve gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

LUGGING ABILITY IN 7th (2Lo Lo) GEAR

Crankshaft Speed rpm	2599	2351	2082	1814	1562	1294	1028
Pull—lbs *(kN)*	14440 *(64.23)*	15763 *(70.12)*	17949 *(79.84)*	19503 *(86.75)*	20411 *(90.79)*	21662 *(96.36)*	21614 *(96.14)*
Increase in Pull %	0	9	24	35	41	50	50
Power—Hp *(kW)*	186.36 *(138.97)*	183.28 *(136.67)*	183.27 *(136.67)*	172.28 *(128.47)*	154.59 *(115.28)*	134.82 *(100.53)*	106.88 *(79.70)*
Speed—Mph *(km/h)*	4.84 *(7.79)*	4.36 *(7.02)*	3.83 *(6.16)*	3.31 *(5.33)*	2.84 *(4.57)*	2.33 *(3.76)*	1.85 *(2.98)*
Slip %	4.05	4.44	5.22	5.84	6.44	7.04	7.04

TRACTOR SOUND LEVEL WITH CAB	dB(A)
Maximum Available Power—Two Hours	84.5
75% of Pull at Maximum Power—Ten Hours	86.0
50% of Pull at Maximum Power—Two Hours	86.5
50% of Pull at Reduced Engine Speed—Two Hours	80.0
Bystander in 15th (3Hi Lo) gear	95.5

TIRES, BALLAST AND WEIGHT	Tested Without Ballast
Rear Tires—No., size, ply & psi *(kPa)*	Four 23.1-34; 8; inner 16 *(110)* outer 12 *(85)*
Ballast—Liquid (each)	None
—Cast Iron (each)	None
Front Tires—No., size, ply & psi *(kPa)*	Four 23.1-34; 8; inner 16 *(110)* outer 12 *(85)*
Ballast—Liquid (each)	None
—Cast Iron (each)	None
Height of drawbar	21.5 in *(545 mm)*
Static Weight with Operator—Rear	12180 lb *(5525 kg)*
Front	18740 lb *(8500 kg)*
Total	30920 lb *(14025 kg)*

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1345.**

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

Massey Ferguson 4840 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1344 — MASSEY FERGUSON 4880 DIESEL 18 SPEED—ALSO 12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1108 rpm)								
272.81 (203.43)	2600	17.349 (65.674)	0.449 (0.273)	15.72 (3.098)	184 (84.3)	54 (12.2)	75 (23.9)	28.927 (97.681)
Standard Power Take-Off Speed (1000 rpm)—One Hour								
267.38 (199.39)	2348	15.916 (60.249)	0.420 (0.256)	16.80 (3.309)	183 (83.8)	54 (12.1)	75 (23.8)	28.900 (97.591)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
242.56 (180.88)	2721	16.767 (63.471)	0.488 (0.297)	14.47 (2.850)	182 (83.6)	54 (12.2)	75 (23.9)	....
0.00 (0.00)	2799	6.805 (25.761)	....	....	176 (80.0)	54 (11.9)	74 (23.6)	....
123.83 (92.34)	2774	12.141 (45.959)	0.692 (0.421)	10.20 (2.009)	180 (81.9)	54 (12.2)	75 (23.9)	....
273.97 (204.30)	2600	17.345 (65.658)	0.447 (0.272)	15.80 (3.112)	184 (84.4)	54 (12.2)	75 (23.9)	....
62.18 (46.36)	2787	9.528 (36.069)	1.082 (0.658)	6.53 (1.285)	177 (80.6)	53 (11.7)	75 (23.9)	....
184.56 (137.63)	2758	14.499 (54.884)	0.555 (0.337)	12.73 (2.508)	180 (82.2)	54 (11.9)	75 (23.9)	....
Av 147.85 **Av (110.25)**	**2740**	**12.848** **(48.634)**	**0.614** **(0.373)**	**11.51** **(2.267)**	**180** **(82.1)**	**54** **(12.0)**	**75** **(23.8)**	**28.875** **(97.507)**

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th (2Lo Int) Gear											
235.40 (175.54)	15271 (67.93)	5.78 (9.30)	2599	4.40	17.435 (65.998)	0.523 (0.318)	13.50 (2.660)	185 (85.0)	61 (16.1)	85 (29.4)	28.788 (97.211)
75% of Pull at Maximum Power—Ten Hours 8th (2Lo Int) Gear											
194.65 (145.15)	11822 (52.59)	6.17 (9.94)	2742	3.16	16.249 (61.509)	0.590 (0.359)	11.98 (2.360)	175 (79.3)	57 (12.4)	74 (23.2)	28.799 (97.250)
50% of Pull at Maximum Power—Two Hours 8th (2Lo Int) Gear											
131.99 (98.42)	7827 (34.81)	6.32 (10.18)	2785	2.36	13.771 (52.128)	0.737 (0.448)	9.58 (1.888)	174 (78.9)	42 (5.3)	54 (12.2)	28.995 (97.912)
50% of Pull at Reduced Engine Speed—Two Hours 13th (3Lo Lo) Gear											
132.73 (98.97)	7869 (35.00)	6.33 (10.18)	1507	2.28	8.815 (33.368)	0.469 (0.285)	15.06 (2.966)	174 (78.9)	43 (6.1)	57 (13.9)	28.985 (97.878)
MAXIMUM POWER IN SELECTED GEARS											
204.40 (152.42)	29272 (130.21)	2.62 (4.21)	2679	14.80	2nd (1Lo Int) Gear			175 (79.4)	37 (2.8)	46 (7.8)	28.960 (97.794)
219.66 (163.80)	28494 (126.75)	2.89 (4.65)	2600	12.49	3rd (1Hi Lo) Gear			175 (79.2)	39 (3.9)	49 (9.4)	28.980 (97.861)
219.92 (163.99)	27685 (123.15)	2.98 (4.79)	2599	11.15	4th (1Lo Hi) Gear			174 (78.9)	38 (3.3)	47 (8.3)	28.970 (97.827)
232.14 (173.10)	24025 (106.87)	3.62 (5.83)	2599	8.57	5th (1Hi Int) Gear			180 (81.9)	57 (13.9)	70 (21.1)	28.860 (97.456)
236.86 (176.63)	21361 (95.02)	4.16 (6.69)	2600	6.82	6th (1Hi Hi) Gear			179 (81.4)	58 (14.4)	73 (22.8)	28.860 (97.456)
236.52 (176.37)	18614 (82.80)	4.76 (7.67)	2602	5.53	7th (2Lo Lo) Gear			178 (81.1)	57 (13.9)	68 (20.0)	28.860 (97.456)
242.21 (180.61)	15733 (69.99)	5.77 (9.29)	2600	4.44	8th (2Lo Int) Gear			180 (82.2)	58 (14.4)	72 (22.2)	28.860 (97.456)
238.54 (177.88)	13884 (61.76)	6.44 (10.37)	2600	3.81	9th (2Hi Lo) Gear			183 (83.9)	60 (15.6)	80 (26.7)	28.840 (97.388)
244.57 (182.37)	14022 (62.37)	6.54 (10.53)	2598	3.81	10th (2Lo Hi) Gear			183 (83.6)	60 (15.6)	81 (27.2)	28.840 (97.388)
240.55 (179.38)	11571 (51.47)	7.80 (12.55)	2601	3.01	11th (2Hi Int) Gear			183 (83.6)	60 (15.6)	82 (27.8)	28.840 (97.388)
237.14 (176.84)	10098 (44.92)	8.81 (14.17)	2601	2.60	12th (2Hi Hi) Gear			183 (83.9)	60 (15.6)	83 (28.3)	28.840 (97.388)

Department of Agricultural Engineering

Dates of Test: April 19—May 9, 1980

Manufacturer: MASSEY FERGUSON, INC., 1901 Bell Ave., Des Moines, Iowa 50315

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 30 **API service classification** SB/SE-CA/CD **To motor** 6.848 gal *(25.920 l)* **Drained from motor** 6.373 gal *(24.122 l)* **Transmission, hydraulic, and final drive lubricant** MF Permatran **Total time engine was operated** 46 hours.

ENGINE Make Cummins Dsl **Type** eight cylinder vee with turbocharger **Serial No.** 10889862 **Crankshaft** lengthwise **Rated rpm** 2600 **Bore and stroke** 5.5" × 4.75" *(139.7 mm × 120.7 mm)* **Compression ratio** 15.5 to 1 **Displacement** 903 cu in *(14800 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow cartridge and one bypass cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** two thermostats.

CHASSIS: Type four wheel drive with duals **Serial No.** 9D 002148 **Tread width** rear 70" *(1778 mm)* to 130.5" *(3314 mm)* front 70" *(1778 mm)* to 130.5" *(3314 mm)* **Wheel base** 137" *(3480 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 84.5" *(2146 mm)* Vertical distance above roadway 49.1" *(1247 mm)* Horizontal distance from center of rear wheel tread 0.3" *(7 mm)* to the right **Hydraulic control system** direct engine drive **Transmission** Selective gear fixed ratio with partial (3) range operator controlled powershift **Advertised speeds mph (km/h)** first 2.4 *(3.8)* second 2.9 *(4.6)* third 3.2 *(5.1)* fourth 3.2 *(5.2)* fifth 3.8 *(6.1)* sixth 4.3 *(6.9)* seventh 4.8 *(7.8)* eighth 5.8 *(9.3)* ninth 6.4 *(10.3)* tenth 6.5 *(10.5)* eleventh 7.7 *(12.4)* twelfth 8.7 *(14.0)* thirteenth 10.7 *(17.2)* fourteenth 12.8 *(20.6)* fifteenth 14.2 *(22.9)* sixteenth 14.4 *(23.2)* seventeenth 17.0 *(27.4)* eighteenth 19.2 *(30.9)* reverse 3.2 *(5.2)*, 3.9 *(6.3)*, 4.3 *(7.0)*, 4.4 *(7.1)*, 5.2 *(8.3)*, 5.8 *(9.4)* **Clutch** multiple wet disc operated by foot pedal **Brakes** caliper disc hydraulically operated by foot pedal or mechanically by hand lever **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 246" *(6.25 m)* left 246" *(6.25 m)* **Turning space diameter** (on concrete surface without brake) right 516" *(13.10 m)* left 516" *(13.10 m)* **Power take-off** 1000 rpm at 2348 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

LUGGING ABILITY IN 8th (2Lo Int) GEAR

Crankshaft Speed rpm	2600	2351	2080	1818	1561	1304
Pull—lbs *(kN)*	15733 *(69.99)*	16908 *(75.21)*	18168 *(80.81)*	19475 *(86.63)*	18951 *(84.30)*	18337 *(81.57)*
Increase in Pull %	0	7	15	24	20	17
Power—Hp *(kW)*	242.21 *(180.61)*	234.32 *(174.73)*	221.59 *(165.24)*	206.56 *(154.03)*	172.75 *(128.82)*	139.93 *(104.35)*
Speed—Mph *(km/h)*	5.77 *(9.29)*	5.20 *(8.36)*	4.57 *(7.36)*	3.98 *(6.40)*	3.42 *(5.50)*	2.86 *(4.61)*
Slip %	4.44	4.91	5.53	5.99	5.84	5.68

TRACTOR SOUND LEVEL WITH CAB	dB(A)
Maximum Available Power—Two Hours	81.5
75% of Pull at Maximum Power—Ten Hours	83.0
50% of Pull at Maximum Power—Two Hours	83.5
50% of Pull at Reduced Engine Speed—Two Hours	80.5
Bystander in 15th (3Hi Lo) gear	91.5

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 23.1-34; 8; inner 16 *(110)* outer 12 *(85)*	Four 23.1-34; 8; inner 16 *(110)* outer 12 *(85)*
Ballast	—Liquid (each inner)	680 lb *(308 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Four 23.1-34; 8; inner 16 *(110)* outer 12 *(85)*	Four 23.1-34; 8; inner 16 *(110)* outer 12 *(85)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	None	None
Height of drawbar		21.5 in *(545 mm)*	21.5 in *(545 mm)*
Static Weight with Operator—Rear		13600 lb *(6169 kg)*	12240 lb *(5552 kg)*
Front		18850 lb *(8550 kg)*	18850 lb *(8550 kg)*
Total		32450 lb *(14719 kg)*	31090 lb *(14102 kg)*

REMARKS: All test results were d
from observed data obtained in accor
SAE and ASAE test code or official Ne
procedure. Temperature at injection
140°F *(59.8°C)*. Eleven gears were chose
15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that thi
and correct report of official Tractor T

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, C
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test

Massey Ferguson 4880 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

ALLIS CHALMERS 7010 POWER DIRECTOR DIESEL
20 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	Fuel Consumption lb/hp.hr (kg/kW.h)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Temperature °F (°C) Air wet bulb	Temperature °F (°C) Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1021 rpm)								
106.53 (79.44)	2300	6.989 (26.456)	0.465 (0.282)	15.24 (3.003)	191 (88.1)	58 (14.5)	75 (23.9)	28.895 (97.568)
Standard Power Take-Off Speed (1000 rpm)—One Hour								
107.52 (80.18)	2253	6.944 (26.287)	0.456 (0.277)	15.48 (3.050)	193 (89.2)	58 (14.4)	75 (23.9)	28.890 (97.557)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
96.41 (71.89)	2452	6.831 (25.858)	0.500 (0.304)	14.11 (2.780)	189 (87.2)	58 (14.4)	75 (23.9)	....
0.00 (0.00)	2572	2.566 (9.713)	....	....	178 (81.4)	58 (14.4)	74 (23.6)	....
49.38 (36.82)	2511	4.647 (17.592)	0.665 (0.404)	10.62 (2.093)	186 (85.8)	58 (14.4)	74 (23.6)	....
107.21 (79.94)	2300	7.001 (26.501)	0.461 (0.281)	15.31 (3.017)	194 (89.7)	59 (15.0)	76 (24.4)	....
24.99 (18.63)	2542	3.602 (13.636)	1.018 (0.619)	6.94 (1.366)	180 (82.2)	59 (15.0)	75 (23.9)	....
73.04 (54.46)	2477	5.692 (21.548)	0.550 (0.335)	12.83 (2.528)	190 (87.8)	60 (15.3)	76 (24.2)	....
Av 58.50 *Av (43.63)*	**2476**	**5.057** *(19.141)*	**0.610** *(0.371)*	**11.57** *(2.279)*	**186** *(85.7)*	**59** *(14.8)*	**75** *(23.9)*	**28.890** *(97.557)*

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	Fuel Consumption lb/hp.hr (kg/kW.h)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Temp. °F (°C) Air wet bulb	Temp. °F (°C) Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 11th (5SL) Gear											
87.83 (65.49)	5448 (24.23)	6.05 (9.73)	2302	7.60	6.974 (26.399)	0.561 (0.341)	12.59 (2.481)	187 (85.8)	43 (6.1)	56 (13.3)	29.020 (97.996)
75% of Pull at Maximum Power—Ten Hours 11th (5SL) Gear											
75.38 (56.21)	4254 (18.92)	6.64 (10.69)	2468	5.38	6.563 (24.845)	0.615 (0.374)	11.48 (2.262)	186 (85.4)	47 (8.1)	60 (15.7)	28.746 (97.071)
50% of Pull at Maximum Power—Two Hours 11th (5SL) Gear											
51.72 (38.57)	2854 (12.61)	6.84 (11.02)	2500	3.81	5.346 (20.235)	0.730 (0.444)	9.68 (1.906)	183 (83.9)	46 (7.5)	61 (16.1)	28.975 (97.844)
50% of Pull at Reduced Engine Speed—Two Hours 14th (2FH) Gear											
52.10 (38.85)	2857 (12.71)	6.84 (11.00)	1882	3.81	4.372 (16.550)	0.593 (0.360)	11.92 (2.347)	184 (84.4)	59 (15.0)	68 (19.7)	28.325 (95.649)
MAXIMUM POWER IN SELECTED GEARS											
79.19 (59.05)	9426 (41.93)	3.15 (5.07)	2427	14.95	4th (1 FL) Gear			184 (84.4)	55 (12.8)	62 (16.7)	28.320 (95.632)
78.33 (58.41)	8852 (39.37)	3.32 (5.34)	2301	14.95	5th (2 SH) Gear			187 (86.1)	62 (16.7)	73 (22.8)	28.340 (95.700)
84.30 (62.86)	8281 (36.83)	3.82 (6.14)	2301	12.10	6th (1 FH) Gear			188 (86.7)	56 (13.3)	63 (17.2)	28.320 (95.632)
85.08 (63.45)	8382 (37.29)	3.81 (6.13)	2301	12.29	7th (3 SL) Gear			188 (86.7)	56 (13.3)	63 (17.2)	28.320 (95.632)
88.14 (65.72)	7703 (34.26)	4.29 (6.91)	2302	11.52	8th (4 SL) Gear			186 (85.6)	39 (3.9)	50 (10.0)	29.050 (98.097)
87.75 (65.44)	6789 (30.20)	4.85 (7.80)	2298	9.54	9th (3 SH) Gear			185 (85.0)	38 (3.3)	48 (8.9)	29.060 (98.131)
89.11 (66.45)	6080 (27.05)	5.50 (8.84)	2300	8.30	10th (4 SH) Gear			186 (85.3)	38 (3.3)	48 (8.9)	29.060 (98.131)
91.44 (68.19)	5671 (25.23)	6.05 (9.73)	2300	7.53	11th (5 SL) Gear			186 (85.6)	36 (2.2)	45 (7.2)	29.060 (98.131)
90.53 (67.51)	5193 (23.10)	6.54 (10.52)	2301	7.03	12th (2 FL) Gear			186 (85.6)	39 (3.9)	50 (10.0)	29.050 (98.097)
86.87 (64.78)	4270 (19.00)	7.63 (12.28)	2302	5.80	13th (5 SH) Gear			187 (86.1)	40 (4.4)	51 (10.6)	29.050 (98.097)
90.42	4128	8.21	2300	5.43	14th (2 FH) Gear			186	40	51	29.050

Department of Agricultural Engineering

Dates of Test: May 1—13, 1980

Manufacturer: ALLIS CHALMERS CORPORATION, P.O. Box 512, Milwaukee, Wisconsin 53201

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 30 **API service classification** SE-CD **To motor** 3.279 gal *(12.411 l)* **Drained from motor** 2.900 gal *(10.977 l)* **Transmission and final drive lubricant** A.C. Power fluid 821 **Total time engine was operated** 41.0 hours.

ENGINE Make Allis Chalmers Dsl **Type** six cylinder vertical with turbocharger **Serial No.** 4907684 **Crankshaft** lengthwise **Rated rpm** 2300 **Bore and stroke** 3.875" × 4.25" *(98.4 mm × 107.9 mm)* **Compression ratio** 16.25 to 1 **Displacement** 301 cu in *(4932 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with centrifugal precleaner **Oil filter** two full flow elements **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge **Muffler** vertical **Cooling medium temperature control** two thermostats

CHASSIS: Type standard **Serial No.** 7010 1649 **Tread width** rear 64" *(1626 mm)* to 97" *(2464 mm)* front 60" *(1524 mm)* to 91" *(2311 mm)* **Wheel base** 106" *(2692 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 30.8" *(782 mm)* Vertical distance above roadway 38.7" *(983 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** Selective gear fixed ratio with partial (2) range operator controlled power shift **Advertised speeds mph *(km/h)*** first 1.6 *(2.6)* second 2.0 *(3.2)* third 3.3 *(5.3)* fourth 3.7 *(6.0)* fifth 4.1 *(6.6)* sixth 4.5 *(7.2)* seventh 4.5 *(7.2)* eighth 5.1 *(8.2)* ninth 5.6 *(9.0)* tenth 6.2 *(10.0)* eleventh 6.8 *(11.0)* twelfth 7.3 *(11.7)* thirteenth 8.4 *(13.5)* fourteenth 9.1 *(14.6)* fifteenth 10.1 *(16.3)* sixteenth 11.3 *(18.3)* seventeenth 12.5 *(20.1)* eighteenth 13.9 *(22.4)* nineteenth 15.2 *(24.5)* twentieth 18.8 *(30.3)* reverse 3.1 *(5.0)*, 3.8 *(6.1)*, 6.8 *(11.0)*, 8.4 *(13.5)* **Clutch** multiple wet disc hydraulically operated by foot pedal **Brakes** multiple wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 149" *(3.79 m)* left 148" *(3.75 m)* (on concrete surface without brake) right 168" *(4.26 m)* left 167" *(4.25 m)* **Turning space diameter** (on concrete surface with brake applied) right 310" *(7.87 m)* left 306" *(7.77 m)* (on concrete surface without brake) right 346" *(8.80 m)* left 346" *(8.78 m)* **Power take-off** 1000 rpm at 2253 engine rpm and 540 rpm at 2230 engine rpm.

LUGGING ABILITY IN 11th (5 SL) GEAR

Crankshaft Speed rpm	2300	2072	1841	1613	1382	1155
Pull—lbs *(kN)*	5671 *(25.23)*	6337 *(28.19)*	6622 *(29.46)*	7096 *(31.56)*	7155 *(31.83)*	6206 *(27.61)*
Increase in Pull %	0	12	17	25	26	9
Power—Hp *(kW)*	91.44 *(68.19)*	91.04 *(67.89)*	84.02 *(62.65)*	78.19 *(58.30)*	67.47 *(50.31)*	49.78 *(37.12)*
Speed—Mph *(km/h)*	6.05 *(9.73)*	5.39 *(8.67)*	4.76 *(7.66)*	4.13 *(6.65)*	3.54 *(5.69)*	3.01 *(4.84)*
Slip %	7.53	8.58	9.13	9.94	10.07	8.44

TRACTOR SOUND LEVEL WITH CAB	dB(A)
Maximum Available Power—Two Hours	77.5
75% of Pull at Maximum Power—Ten Hours	77.5
50% of Pull at Maximum Power—Two Hours	76.5
50% of Pull at Reduced Engine Speed—Two Hours	75.0
Bystander in 20th (5 FH) gear	87.5

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4-38; 8; 18 *(125)*	Two 18.4-38; 8; 18 *(125)*
Ballast	—Liquid (each)	658 lb *(298 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 10.00-16; 6; 32 *(220)*	Two 10.00-16; 6; 32 *(220)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	108 lb *(49 kg)*	None
Height of Drawbar		20.0 in *(510 mm)*	20.0 in *(510 mm)*
Static Weight with Operator	—Rear	9300 lb *(4218 kg)*	7985 lb *(3622 kg)*
	—Front	3490 lb *(1583 kg)*	3275 lb *(1486 kg)*
	—Total	12790 lb *(5801 kg)*	11260 lb *(5108 kg)*

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 142°F *(61.1°C)*. Eleven gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1345.**

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

Allis Chalmers 7010 Power Director Dsl

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1346
ALLIS CHALMERS 7010 POWER SHIFT DIESEL
12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1021 rpm)								
106.72 (79.58)	2300	7.018 (26.563)	0.464 (0.282)	15.21 (2.996)	191 (88.3)	56 (13.3)	75 (23.8)	28.880 (97.523)
Standard Power Take-Off Speed (1000 rpm)—One Hour								
106.33 (79.29)	2253	6.889 (26.078)	0.458 (0.278)	15.43 (3.040)	192 (88.7)	56 (13.3)	75 (24.0)	28.880 (97.523)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
97.02 (72.35)	2462	6.822 (25.826)	0.497 (0.302)	14.22 (2.802)	188 (86.7)	56 (13.6)	75 (23.9)	....
0.00 (0.00)	2556	2.506 (9.488)	....	....	176 (80.0)	56 (13.3)	75 (23.9)	....
49.53 (36.94)	2506	4.575 (17.319)	0.652 (0.397)	10.83 (2.133)	186 (85.3)	56 (13.1)	76 (24.2)	....
108.91 (81.21)	2300	7.048 (26.678)	0.457 (0.278)	15.45 (3.044)	192 (88.9)	55 (12.8)	75 (23.9)	....
24.91 (18.58)	2533	3.543 (13.411)	1.004 (0.611)	7.03 (1.385)	178 (81.1)	54 (12.5)	75 (23.9)	....
73.43 (54.76)	2482	5.633 (21.323)	0.542 (0.330)	13.04 (2.568)	189 (87.2)	55 (12.8)	76 (24.4)	....
Av **58.97**	**2473**	**5.021**	**0.601**	**11.74**	**185**	**55**	**75**	**28.865**
Av *(43.97)*		*(19.007)*	*(0.366)*	*(2.313)*	*(84.9)*	*(13.0)*	*(24.0)*	*(97.473)*

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (2 F) Gear											
89.10 (66.44)	5480 (24.38)	6.10 (9.81)	2300	6.93	7.169 (27.136)	0.568 (0.346)	12.43 (2.448)	187 (86.1)	48 (8.6)	58 (14.2)	28.610 (96.812)
75% of Pull at Maximum Power—Ten Hours 7th (2 F) Gear											
75.43 (56.25)	4217 (18.76)	6.71 (10.80)	2476	4.83	6.645 (25.153)	0.622 (0.378)	11.35 (2.236)	185 (84.9)	49 (9.2)	59 (14.9)	28.905 (97.608)
50% of Pull at Maximum Power—Two Hours 7th (2 F) Gear											
52.08 (38.83)	2836 (12.61)	6.89 (11.08)	2501	3.37	5.434 (20.570)	0.737 (0.448)	9.58 (1.888)	183 (83.9)	51 (10.3)	61 (15.8)	28.550 (96.409)
50% of Pull at Reduced Engine Speed—Two Hours 9th (3 F) Gear											
51.64 (38.51)	2809 (12.49)	6.89 (11.09)	1815	3.25	4.301 (16.282)	0.588 (0.358)	12.01 (2.365)	181 (82.8)	54 (11.9)	64 (17.8)	28.540 (96.375)
MAXIMUM POWER IN SELECTED GEARS											
76.99 (57.41)	9516 (42.33)	3.03 (4.88)	2452	14.91	3rd (3 S) Gear			182 (83.3)	45 (7.2)	51 (10.6)	28.950 (97.760)
85.83 (64.01)	8884 (39.52)	3.62 (5.83)	2300	14.12	4th (4 S) Gear			187 (85.8)	46 (7.8)	55 (12.8)	28.660 (96.781)
91.08 (67.91)	8060 (35.85)	4.24 (6.82)	2300	10.80	5th (1 F) Gear			188 (86.4)	46 (7.8)	55 (12.8)	28.670 (96.814)
84.61 (63.09)	6622 (29.46)	4.79 (7.71)	2300	8.21	6th (5 S) Gear			187 (86.1)	45 (7.2)	54 (12.2)	28.680 (96.848)
91.61 (68.32)	5623 (25.01)	6.11 (9.83)	2300	6.78	7th (2 F) Gear			187 (86.1)	45 (7.2)	53 (11.7)	28.680 (96.848)
86.35 (64.39)	5239 (23.30)	6.18 (9.95)	2301	6.42	8th (6 S) Gear			187 (86.1)	45 (7.2)	54 (12.2)	28.680 (96.848)
91.45 (68.20)	3989 (17.74)	8.60 (13.84)	2300	4.71	9th (3 F) Gear			187 (86.1)	46 (7.8)	56 (13.3)	28.650 (96.747)

Department of Agricultural Engineering

Dates of Test: May 2—14, 1980

Manufacturer: ALLIS CHALMERS CORPORATION, P.O. Box 512, Milwaukee, Wisconsin 53201

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 30 **API service classification** SE-CD **To motor** 3.285 gal *(12.434 l)* **Drained from motor** 3.060 gal *(11.582 l)* **Transmission and final drive lubricant** A.C. Power fluid 821 **Total time engine was operated** 33.0 hours.

ENGINE Make Allis Chalmers Dsl **Type** six cylinder vertical with turbocharger **Serial No.** 4907332 **Crankshaft** lengthwise **Rated rpm** 2300 **Bore and stroke** 3.875" × 4.25" *(98.4 mm × 107.9 mm)* **Compression ratio** 16.25 to 1 **Displacement** 301 cu in *(4932 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with centrifugal precleaner **Oil filter** two full flow cartridges **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge **Muffler** vertical **Cooling medium temperature control** two thermostats

CHASSIS: Type standard **Serial No.** 7010 S 1636 **Tread width** rear 64" *(1626 mm)* to 97" *(2464 mm)* front 60" *(1524 mm)* to 91" *(2311 mm)* **Wheel base** 106" *(2692 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 30.3" *(770 mm)* Vertical distance above roadway 38.1" *(968 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** Selective gear fixed ratio with partial (6) range operator controlled power shift **Advertised speeds mph (km/h)** first 1.8 *(2.9)* second 2.5 *(4.0)* third 3.5 *(5.6)* fourth 4.4 *(7.1)* fifth 4.9 *(7.9)* sixth 5.4 *(8.7)* seventh 6.8 *(11.0)* eighth 6.8 *(11.0)* ninth 9.3 *(15.0)* tenth 11.8 *(19.0)* eleventh 14.6 *(23.5)* twelfth 18.4 *(30.0)* reverse 2.9 *(4.7)*, 7.9 *(12.7)* **Clutch** multiple wet disc hydraulically operated by foot pedal **Brakes** multiple wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 148" *(3.77 m)* left 148" *(3.76 m)* (on concrete surface without brake) right 168" *(4.26 m)* left 168" *(4.26 m)* **Turning space diameter** (on concrete surface with brake applied) right 308" *(7.82 m)* left 307" *(7.80 m)* (on concrete surface without brake) right 346" *(8.79 m)* left 346" *(8.79 m)* **Power take-off** 1000 rpm at 2253 engine rpm and 540 rpm at 2230 engine rpm.

LUGGING ABILITY IN 7th (2 F) GEAR

Crankshaft Speed rpm	2300	2071	1840	1609	1376	1148
Pull—lbs *(kN)*	5623 *(25.01)*	6256 *(27.83)*	6683 *(29.73)*	7011 *(31.19)*	6808 *(30.29)*	5836 *(25.96)*
Increase in Pull %	0	11	19	25	21	4
Power—Hp *(kW)*	91.61 *(68.32)*	90.93 *(67.80)*	85.68 *(63.89)*	78.21 *(58.32)*	65.12 *(48.56)*	47.21 *(35.20)*
Speed—Mph *(km/h)*	6.11 *(9.83)*	5.45 *(8.77)*	4.81 *(7.74)*	4.18 *(6.73)*	3.59 *(5.77)*	3.03 *(4.88)*
Slip %	6.78	7.64	8.35	8.77	8.49	7.22

TRACTOR SOUND LEVEL WITH CAB	dB(A)
Maximum Available Power—Two Hours	78.0
75% of Pull at Maximum Power—Ten Hours	77.5
50% of Pull at Maximum Power—Two Hours	77.0
50% of Pull at Reduced Engine Speed—Two Hours	75.0
Bystander in 11th (5 F) gear	88.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4-38; 8; 18 *(125)*	Two 18.4-38; 8; 18 *(125)*
Ballast	—Liquid (each)	575 lb *(261 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 10.00-16; 6; 32 *(220)*	Two 10.00-16; 6; 32 *(220)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	108 lb *(49 kg)*	None
Height of Drawbar		20.5 in *(520 mm)*	20.5 in *(520 mm)*
Static Weight with Operator—Rear		9270 lb *(4205 kg)*	8120 lb *(3683 kg)*
—Front		3470 lb *(1574 kg)*	3255 lb *(1476 kg)*
—Total		12740 lb *(5779 kg)*	11375 lb *(5159 kg)*

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 140°F *(60.0°C)*. Seven gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1346.**

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

Allis Chalmers 7010 Power Shift Dsl

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1347 — SATOH MITSUBISHI STALLION S750 DD ALSO S750 D 9 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—652 rpm)								
33.45 (24.95)	2500	2.851 (10.793)	0.602 (0.366)	11.73 (2.311)	216 (102.5)	56 (13.6)	75 (23.8)	28.913 (97.636)
Standard Power Take-Off Speed (540 rpm)—One Hour								
28.11 (20.96)	2070	2.358 (8.925)	0.592 (0.360)	11.92 (2.349)	218 (103.4)	56 (13.5)	75 (23.9)	28.930 (97.692)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
29.39 (21.91)	2584	2.116 (8.008)	0.508 (0.309)	13.89 (2.736)	204 (95.3)	56 (13.6)	75 (23.9)	....
0.00 (0.00)	2686	0.828 (3.136)	....	....	174 (79.2)	56 (13.3)	75 (23.9)	....
15.00 (11.18)	2638	1.342 (5.082)	0.632 (0.384)	11.17 (2.201)	182 (83.1)	56 (13.3)	76 (24.4)	....
33.20 (24.76)	2501	2.897 (10.967)	0.616 (0.375)	11.46 (2.258)	211 (99.4)	55 (12.8)	75 (23.9)	....
7.57 (5.64)	2662	0.998 (3.779)	0.931 (0.566)	7.58 (1.494)	179 (81.7)	55 (12.8)	74 (23.6)	....
22.27 (16.61)	2611	1.682 (6.368)	0.533 (0.325)	13.24 (2.608)	188 (86.4)	55 (12.8)	76 (24.2)	....
Av 17.90	**2614**	**1.644**	**0.648**	**10.89**	**190**	**56**	**75**	**28.923**
Av (13.35)		*(6.223)*	*(0.394)*	*(2.145)*	*(87.5)*	*(13.1)*	*(24.0)*	*(97.670)*

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 6th (M-3) Gear											
26.71 (19.92)	2029 (9.03)	4.94 (7.94)	2500	6.00	2.708 (10.251)	0.716 (0.436)	9.86 (1.943)	210 (98.9)	56 (13.3)	73 (22.8)	28.950 (97.760)
75% of Pull at Maximum Power—Ten Hours 6th (M-3) Gear											
22.48 (16.77)	1626 (7.23)	5.18 (8.34)	2608	5.30	2.011 (7.612)	0.632 (0.384)	11.18 (2.203)	180 (82.2)	51 (10.6)	52 (11.2)	28.841 (97.392)
50% of Pull at Maximum Power—Two Hours 6th (M-3) Gear											
15.43 (11.51)	1087 (4.83)	5.33 (8.57)	2638	3.88	1.611 (6.097)	0.737 (0.448)	9.58 (1.888)	178 (80.8)	52 (11.1)	53 (11.7)	28.760 (97.118)
50% of Pull at Reduced Engine Speed—Two Hours 8th (H-2) Gear											
15.51 (11.57)	1089 (4.84)	5.34 (8.60)	1700	3.71	1.310 (4.958)	0.596 (0.363)	11.84 (2.333)	176 (80.0)	54 (11.9)	54 (12.2)	28.770 (97.152)
MAXIMUM POWER IN SELECTED GEARS											
24.82 (18.51)	4295 (19.11)	2.17 (3.49)	2577	14.89	4th (M-1) Gear			182 (83.3)	54 (12.2)	57 (13.9)	28.790 (97.220)
27.23 (20.30)	3600 (16.02)	2.84 (4.56)	2502	12.03	5th (M-2) Gear			204 (95.6)	56 (13.3)	70 (21.1)	28.940 (97.726)
28.57 (21.30)	2168 (9.65)	4.94 (7.95)	2502	5.86	6th (M-3) Gear			196 (91.1)	54 (12.2)	64 (17.8)	28.950 (97.760)
28.99 (21.61)	1832 (8.15)	5.93 (9.55)	2500	5.20	7th (H-1) Gear			203 (95.0)	55 (12.8)	70 (21.1)	28.930 (97.692)
28.36 (21.15)	1355 (6.03)	7.85 (12.63)	2500	3.85	8th (H-2) Gear			204 (95.3)	57 (13.9)	72 (22.2)	28.930 (97.692)

Department of Agricultural Engineering

Dates of Test: May 10—19, 1980

Manufacturer: MITSUBISHI AGRICULTURAL MACHINERY CO., LTD, Higashi Izumo-cho Yatsuka-gun Shimane Pref. Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 30 **API service classification** SB/SE-CA/CD **To motor** 1.474 gal *(5.579 l)* **Drained from motor** 1.332 gal *(5.042 l)* **Transmission and final drive lubricant** SAE 80 **Total time engine was operated** 48.0 hours.

ENGINE Make ISUZU Dsl **Type** three cylinder vertical **Serial No.** 530033 **Crankshaft** lengthwise **Rated rpm** 2500 **Bore and stroke** 3.386" × 4.016" *(86 mm × 102 mm)* **Compression ratio** 20.0 to 1 **Displacement** 108.4 cu in *(1777 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow paper cartridge **Fuel filter** one paper cartridge and one mesh screen **Muffler** vertical **Cooling medium temperature control** one thermostat

CHASSIS: Type front wheel assist **Serial No.** S-750DD-00042 **Tread width** rear 52" *(1320 mm)* to 71.7" *(1820 mm)* front 50.2" *(1275 mm)* **Wheel base** 73.6" *(1870 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 28.1" *(714 mm)* Vertical distance above roadway 33.1" *(841 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** Selective gear fixed ratio **Advertised speeds mph (km/h)** first 0.9 *(1.5)* second 1.2 *(1.9)* third 1.9 *(3.1)* fourth 2.5 *(4.0)* fifth 3.2 *(5.2)* sixth 5.2 *(8.4)* seventh 6.2 *(10.0)* eighth 8.1 *(13.1)* ninth 15.9 *(25.6)* reverse 1.5 *(2.4)*, 4.0 *(6.4)* 10.1 *(16.2)* **Clutch** dual dry disc operated by foot pedal **Brakes** expanding shoe operated by two foot pedals which can be locked together **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 110.2" *(2.80 m)* left 110.2" *(2.80 m)* (on concrete surface without brake) right 121.2" *(3.08 m)* left 121.2" *(3.08 m)* **Turning space diameter** (on concrete surface with brake applied) right 228.2" *(5.80 m)* left 228.2" *(5.80 m)* (on concrete surface without brake) right 250" *(6.35 m)* left 250" *(6.35 m)* **Power take-off** 540 rpm at 2070 engine rpm.

LUGGING ABILITY IN 6th (M-3) GEAR

Crankshaft Speed rpm	2502	2252	1994	1754	1485	1240
Pull—lbs *(kN)*	2168 *(9.63)*	2237 *(9.95)*	2251 *(10.01)*	2271 *(10.10)*	2178 *(9.69)*	2067 *(9.19)*
Increase in Pull %	0	3	4	5	0	−5
Power—Hp *(kW)*	28.57 *(21.30)*	26.48 *(19.74)*	23.56 *(17.57)*	20.89 *(15.57)*	17.01 *(12.69)*	13.52 *(10.08)*
Speed—Mph *(km/h)*	4.94 *(7.95)*	4.44 *(7.14)*	3.93 *(6.32)*	3.45 *(5.55)*	2.93 *(4.72)*	2.45 *(3.95)*
Slip %	5.86	6.13	6.24	6.35	6.02	5.59

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	99.5	99.0
75% of Pull at Maximum Power—Ten Hours	–	97.0
50% of Pull at Maximum Power—Two Hours	–	98.5
50% of Pull at Reduced Engine Speed—Two Hours	–	92.5
Bystander in 9th (H-3) gear	–	84.5

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 6th (M-3) Gear											
26.14 *(19.49)*	1944 *(8.65)*	5.04 *(8.11)*	2500	4.74	2.726 *(10.318)*	0.737 *(0.448)*	9.59 *(1.889)*	213 *(100.3)*	57 *(13.6)*	75 *(23.6)*	28.885 *(97.541)*
MAXIMUM POWER IN SELECTED GEARS											
26.77 *(19.97)*	4655 *(20.71)*	2.16 *(3.47)*	2543	14.94	4th (M-1) Gear			183 *(83.9)*	54 *(12.2)*	57 *(13.9)*	28.790 *(97.220)*
28.27 *(21.08)*	2107 *(9.37)*	5.03 *(8.10)*	2499	5.05	6th (M-3) Gear			199 *(92.8)*	55 *(12.8)*	68 *(20.0)*	28.950 *(97.760)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 13.6-28; 4; 14 *(95)*	Two 13.6-28; 4; 14 *(95)*
Ballast	—Liquid (each)	425 lb *(193 kg)*	None
	—Cast Iron (each)	385 lb *(174 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 7-16; 4; 26 *(180)*	Two 7-16; 4; 26 *(180)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	None	None
Height of Drawbar		17.5 in *(445 mm)*	17.5 in *(445 mm)*
Static Weight with Operator—	Rear	4050 lb *(1837 kg)*	2430 lb *(1103 kg)*
	—Front	1500 lb *(680 kg)*	1500 lb *(680 kg)*
	—Total	5550 lb *(2517 kg)*	3930 lb *(1783 kg)*

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 168°F *(75.6°C)*. Five gears were chosen between 15% slip and 10 mph *(16.1 km/h)*. The front wheel final drives leaked oil slightly during the tests.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1347.**

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

Satoh Mitsubishi Stallion

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1348 — KUBOTA M4500DT DIESEL
ALSO KUBOTA M4500 DIESEL
16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—640 rpm)								
49.72 (37.07)	2600	3.460 (13.098)	0.491 (0.299)	14.37 (2.831)	222 (105.8)	55 (12.9)	75 (23.8)	28.943 (97.737)
Standard Power Take-Off Speed (540 rpm)—One Hour								
44.49 (33.17)	2192	2.928 (11.085)	0.465 (0.283)	15.19 (2.993)	223 (106.3)	54 (12.2)	75 (23.9)	28.930 (97.692)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
42.87 (31.97)	2638	2.935 (11.112)	0.484 (0.294)	14.60 (2.877)	206 (96.7)	54 (12.2)	75 (23.9)	....
0.00 (0.00)	2787	0.981 (3.715)	....	....	184 (84.4)	54 (12.2)	75 (23.9)	....
22.08 (16.46)	2716	1.856 (7.027)	0.594 (0.361)	11.89 (2.343)	188 (86.7)	54 (12.2)	75 (23.9)	....
50.59 (37.73)	2600	3.522 (13.331)	0.492 (0.299)	14.37 (2.830)	217 (102.8)	56 (13.1)	75 (23.9)	....
11.13 (8.30)	2740	1.376 (5.210)	0.873 (0.531)	8.09 (1.593)	184 (84.4)	56 (13.6)	75 (23.9)	....
32.74 (24.42)	2685	2.370 (8.973)	0.511 (0.311)	13.81 (2.721)	192 (88.6)	56 (13.6)	75 (23.9)	....
Av 26.57 *Av (19.81)*	**2694**	**2.174** *(8.228)*	**0.578** *(0.351)*	**12.22** *(2.408)*	**195** *(90.6)*	**55** *(12.8)*	**75** *(23.9)*	**28.917** *(97.649)*

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 13th (HH-1) Gear											
40.85 (30.46)	3102 (13.80)	4.94 (7.95)	2600	9.96	3.434 (12.999)	0.594 (0.361)	11.90 (2.343)	210 (98.9)	59 (15.0)	68 (20.0)	28.935 (97.709)
75% of Pull at Maximum Power—Ten Hours 13th (HH-1) Gear											
33.24 (24.79)	2389 (10.63)	5.22 (8.40)	2660	6.96	2.765 (10.466)	0.587 (0.357)	12.02 (2.369)	191 (88.3)	59 (15.0)	69 (20.6)	28.877 (97.513)
50% of Pull at Maximum Power—Two Hours 13th (HH-1) Gear											
23.06 (17.20)	1601 (7.12)	5.40 (8.69)	2691	4.77	2.142 (8.107)	0.656 (0.399)	10.77 (2.121)	187 (85.8)	60 (15.3)	66 (18.6)	28.990 (97.895)
50% of Pull at Reduced Engine Speed—Two Hours 14th (HH-2) Gear											
23.10 (17.23)	1599 (7.11)	5.42 (8.72)	2211	4.53	1.876 (7.102)	0.574 (0.349)	12.31 (2.425)	188 (86.4)	62 (16.7)	73 (22.5)	28.990 (97.895)
MAXIMUM POWER IN SELECTED GEARS											
33.75 (25.17)	4812 (21.40)	2.63 (4.23)	2679	14.99	11th (HL-3) Gear			186 (85.6)	54 (12.2)	56 (13.3)	29.010 (97.962)
41.17 (30.70)	4335 (19.28)	3.56 (5.73)	2600	13.21	12th (HL-4) Gear			194 (90.0)	55 (12.8)	57 (13.9)	28.990 (97.895)
41.96 (31.29)	3187 (14.18)	4.94 (7.95)	2600	9.90	13th (HH-1) Gear			199 (92.8)	55 (12.8)	58 (14.4)	28.940 (97.726)
42.50 (31.69)	2588 (11.51)	6.16 (9.91)	2600	7.63	14th (HH-2) Gear			204 (95.6)	57 (13.9)	65 (18.3)	28.940 (97.726)

LUGGING ABILITY IN 13th (HH-1) GEAR

Crankshaft Speed rpm	2600	2343	2080	1824	1558	1298	1027
Pull—lbs (kN)	3187 (14.18)	3319 (14.76)	3409 (15.16)	3549 (15.79)	3675 (16.35)	3795 (16.88)	3625 (16.12)
Increase in Pull %	0	4	7	11	15	19	14
Power—Hp (kW)	41.96 (31.29)	39.21 (29.24)	35.60 (26.55)	32.36 (24.13)	28.42 (21.19)	24.25 (18.08)	18.46 (13.77)
Speed—Mph (km/h)	4.94 (7.95)	4.43 (7.13)	3.92 (6.30)	3.42 (5.50)	2.90 (4.67)	2.40 (3.86)	1.91 (3.07)
Slip %	9.90	10.22	10.64	11.05	11.77	12.37	11.77

Department of Agricultural Engineering

Dates of Test: May 12—22, 1980

Manufacturer: KUBOTA LTD, 22 Funade-cho, 2-chome, Naniwa-ku, Osaka, Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 20-20W **API service classification** SB/SE-CA/CD **To motor** 2.682 gal *(10.151 l)* **Drained from motor** 2.586 gal *(9.788 l)* **Transmission and final drive lubricant** SAE 80 **Total time engine was operated** 38.5 hours.

ENGINE Make Kubota Dsl **Type** six cylinder vertical **Serial No.** S2600-A-1622 **Crankshaft** lengthwise **Rated rpm** 2600 **Bore and stroke** 3.23" × 3.23" *(82 mm × 82 mm)* **Compression ratio** 21 to 1 **Displacement** 158.5 cu in *(2598 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow paper cartridge **Fuel filter** one paper cartridge **Muffler** vertical **Cooling medium temperature control** one thermostat

CHASSIS: Type front wheel assist **Serial No.** M4500DT-10788 **Tread width** rear 51.2" *(1300 mm)* to 74.8" *(1900 mm)* front 55.9" *(1420 mm)* **Wheel base** 79.5" *(2020 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from centerline of rear wheels 35.2" *(895 mm)* Vertical distance above roadway 39.3" *(999 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** Selective gear fixed ratio **Advertised speeds mph (km/h)** first 0.3 *(0.4)* second 0.3 *(0.5)* third 0.5 *(0.9)* fourth 0.7 *(1.2)* fifth 1.0 *(1.6)* sixth 1.2 *(1.9)* seventh 1.5 *(2.4)* eighth 1.8 *(3.0)* ninth 2.0 *(3.2)* tenth 2.8 *(4.4)* eleventh 3.1 *(5.0)* twelfth 4.2 *(6.8)* thirteenth 5.6 *(9.1)* fourteenth 6.9 *(11.0)* fifteenth 11.6 *(18.6)* sixteenth 15.8 *(25.4)* reverse 0.3 *(0.5)*, 1.3 *(2.0)*, 2.0 *(3.2)*, 7.4 *(11.9)* **Clutch** single dry disc operated by foot pedal **Brakes** multiple wet disc operated by two foot pedals which can be locked together and hand lever **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 122" *(3.10 m)* left 122" *(3.10 m)* (on concrete surface without brake) right 153.5" *(3.90 m)* left 153.5" *(3.90 m)* **Turning space diameter** (on concrete surface with brake applied) right 252" *(6.40 m)* left 252" *(6.40 m)* (on concrete surface without brake) right 315" *(8.00 m)* left 315" *(8.00 m)* **Power take-off** 540 rpm at 2192 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 165°F *(73.8°C)*. Four gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	91.5	90.5
75% of Pull at Maximum Power—Ten Hours	–	90.0
50% of Pull at Maximum Power—Two Hours	–	90.0
50% of Pull at Reduced Engine Speed—Two Hours	–	88.0
Bystander in 16th (HH-4) gear	–	79.5

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 13th (HH-1) Gear											
41.09 (30.64)	2966 (13.19)	5.20 (8.36)	2601	6.93	3.345 (12.664)	0.575 (0.350)	12.28 (2.419)	213 (100.3)	60 (15.6)	71 (21.4)	28.915 (97.642)
MAXIMUM POWER IN SELECTED GEARS											
36.68 (27.35)	5932 (26.39)	2.32 (3.73)	2638	14.96	10th (LH-4) Gear			191 (88.1)	54 (12.2)	56 (13.3)	29.010 (97.962)
42.53 (31.71)	3077 (13.69)	5.18 (8.34)	2598	7.05	13th (HH-1) Gear			203 (94.7)	56 (13.3)	61 (16.1)	28.940 (97.726)
42.00 (31.32)	2452 (10.91)	6.42 (10.34)	2601	5.59	14th (HH-2) Gear			204 (95.3)	56 (13.3)	63 (17.2)	28.940 (97.726)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 14.9-28; 6; 16 (110)	Two 14.9-28; 6; 16 (110)
Ballast	—Liquid (each)	520 lb (236 kg)	None
	—Cast Iron (each)	475 lb (215 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 9.5-24; 6; 18 (125)	Two 9.5-24; 6; 18 (125)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	323 lb (146 kg)	None
Height of Drawbar		18 in (455 mm)	18 in (455 mm)
Static Weight with Operator	—Rear	5020 lb (2277 kg)	3030 lb (1375 kg)
	—Front	2780 lb (1261 kg)	2135 lb (968 kg)
	—Total	7800 lb (3538 kg)	5165 lb (2343 kg)

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1348.

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

Kubota M4500DT Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1349 — KUBOTA M7500DT DIESEL
ALSO KUBOTA M7500 DIESEL
16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—643 rpm)								
72.34 (53.95)	2400	4.342 (16.437)	0.424 (0.258)	16.66 (3.282)	215 (101.8)	58 (14.5)	76 (24.3)	28.943 (97.737)
Standard Power Take-Off Speed (540 rpm)—One Hour								
66.54 (49.62)	2015	3.731 (14.124)	0.396 (0.241)	17.83 (3.513)	215 (101.6)	57 (14.0)	76 (24.7)	28.950 (97.760)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
63.40 (47.28)	2474	3.730 (14.119)	0.415 (0.253)	17.00 (3.349)	201 (93.9)	58 (14.4)	77 (25.0)	....
0.00 (0.00)	2584	1.219 (4.615)	....	....	179 (81.7)	58 (14.4)	77 (25.0)	....
32.55 (24.27)	2542	2.375 (8.989)	0.515 (0.313)	13.71 (2.700)	184 (84.4)	58 (14.4)	78 (25.6)	....
73.54 (54.84)	2400	4.435 (16.788)	0.426 (0.259)	16.58 (3.266)	210 (98.9)	58 (14.4)	78 (25.3)	....
16.41 (12.23)	2562	1.793 (6.786)	0.772 (0.469)	9.15 (1.803)	182 (83.3)	58 (14.4)	77 (25.0)	....
48.35 (36.05)	2516	3.003 (11 369)	0.439 (0.267)	16.10 (3.171)	185 (85.0)	58 (14.4)	77 (25.0)	....
Av 39.04	**2513**	**2.759**	**0.499**	**14.15**	**190**	**58**	**77**	**28.920**
Av (29.11)		***(10.444)***	***(0.304)***	***(2.787)***	***(87.9)***	***(14.4)***	***(25.1)***	***(97.659)***

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 13th (HH-1) Gear											
58.92 (43.94)	4093 (18.20)	5.40 (8.69)	2399	9.35	4.230 (16.014)	0.507 (0.308)	13.93 (2.744)	211 (99.4)	61 (16.1)	77 (25.0)	28.945 (97.743)
75% of Pull at Maximum Power—Ten Hours 13th (HH-1) Gear											
48.97 (36.51)	3178 (14.14)	5.78 (9.30)	2490	6.63	3.448 (13.052)	0.497 (0.302)	14.20 (2.798)	188 (86.7)	60 (15.6)	74 (23.1)	28.737 (97.041)
50% of Pull at Maximum Power—Two Hours 13th (HH-1) Gear											
34.02 (25.37)	2124 (9.45)	6.01 (9.67)	2532	4.50	2.744 (10.385)	0.569 (0.346)	12.40 (2.443)	183 (83.9)	63 (16.9)	68 (19.7)	28.705 (96.932)
50% of Pull at Reduced Engine Speed—Two Hours 14th (HH-2) Gear											
34.00 (25.36)	2120 (9.43)	6.02 (9.68)	2106	4.24	2.443 (9.246)	0.507 (0.309)	13.92 (2.742)	184 (84.2)	66 (18.6)	82 (27.5)	28.660 (96.781)
MAXIMUM POWER IN SELECTED GEARS											
47.61 (35.51)	6327 (28.14)	2.82 (4.54)	2471	14.92	11th (HL-3) Gear			184 (84.2)	58 (14.4)	60 (15.6)	28.700 (96.916)
58.06 (43.30)	5708 (25.39)	3.81 (6.14)	2400	13.28	12th (HL-4) Gear			196 (90.8)	60 (15.6)	63 (17.2)	28.700 (96.916)
61.18 (45.62)	4236 (18.84)	5.42 (8.72)	2400	9.12	13th (HH-1) Gear			198 (91.9)	60 (15.6)	66 (18.9)	28.960 (97.794)
61.29 (45.70)	3457 (15.38)	6.65 (10.70)	2400	7.07	14th (HH-2) Gear			202 (94.4)	62 (16.7)	72 (22.2)	28.960 (97.794)

LUGGING ABILITY IN 13th (HH-1) GEAR

Crankshaft Speed rpm	2400	2163	1916	1676	1440	1196	959
Pull—lbs (kN)	4236 (18.84)	4553 (20.25)	4709 (20.94)	4874 (21.68)	4914 (21.86)	4948 (22.01)	4833 (21.50)
Increase in Pull %	0	7	11	15	16	17	14
Power—Hp (kW)	61.18 (45.62)	58.75 (43.81)	53.55 (39.93)	48.19 (35.93)	41.53 (30.97)	34.71 (25.88)	27.28 (20.34)
Speed—Mph (km/h)	5.42 (8.72)	4.84 (7.79)	4.26 (6.86)	3.71 (5.97)	3.17 (5.10)	2.63 (4.23)	2.12 (3.41)
Slip %	9.12	10.05	10.51	10.97	11.42	11.42	11.31

Department of Agricultural Engineering

Dates of Test: May 13—27, 1980

Manufacturer: KUBOTA LTD., 22 Funade-cho, 2-chome, Naniwa-ku, Osaka, Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 20-20W **API service classification** SB/SE-CA/CD **To motor** 2.789 gal *(10.556 l)* **Drained from motor** 2.575 gal *(9.746 l)* **Tranmission and hydraulic lubricant** SAE 80 or tractor hydraulic fluid **Front axle lubricant** SAE 80/90 **Total time engine was operated** 39.0 hours.

ENGINE Make Kubota Dsl **Type** four cylinder vertical **Serial No.** V4000-A-1709 **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** 4.134" × 4.528" *(105 mm × 115 mm)* **Compression ratio** 17.0 to 1 **Displacement** 243 cu in *(3983 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow cartridge **Fuel filter** one paper cartridge **Muffler** vertical **Cooling medium temperature control** one thermostat

CHASSIS: Type front wheel assist **Serial No.** M7500DT-10536 **Tread width** rear 59.1" *(1500 mm)* to 74.8" *(1900 mm)* front 59.1" *(1500 mm)* **Wheel base** 85.63" *(2175 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from centerline of rear wheels 35.2" *(893 mm)* Vertical distance above roadway 41.3" *(1050 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** Selective gear fixed ratio **Advertised speeds mph (km/h)** first 0.3 *(0.4)* second 0.3 *(0.6)* third 0.6 *(0.9)* fourth 0.8 *(1.2)* fifth 1.0 *(1.7)* sixth 1.3 *(2.0)* seventh 1.6 *(2.6)* eighth 2.0 *(3.2)* ninth 2.1 *(3.4)* tenth 2.9 *(4.7)* eleventh 3.3 *(5.3)* twelfth 4.5 *(7.3)* thirteenth 6.0 *(9.7)* fourteenth 7.4 *(11.9)* fifteenth 12.4 *(20.0)* sixteenth 17.0 *(27.3)* reverse 0.4 *(0.6)*, 1.4 *(2.2)*, 2.1 *(3.4)*, 8.0 *(12.8)* **Clutch** single dry disc operated by foot pedal **Brakes** multiple wet disc operated by two foot pedals which can be locked together and hand lever **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 133" *(3.38 m)* left 133" *(3.38 m)* (on concrete surface without brake) right 177.2" *(4.50 m)* left 177.2" *(4.50 m)* **Turning space diameter** (on concrete surface with brake applied) right 275.5" *(7.00 m)* left 275.5" *(7.00 m)* (on concrete surface without brake) right 370" *(9.40 m)* left 370" *(9.40 m)* **Power take-off** 540 rpm at 2015 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 165°F *(73.8°C)*. Four gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	97.0	96.0
75% of Pull at Maximum Power—Ten Hours	–	95.5
50% of Pull at Maximum Power—Two Hours	–	94.0
50% of Pull at Reduced Engine Speed—Two Hours	–	90.0
Bystander in 16th (HH-4) gear	–	89.0

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

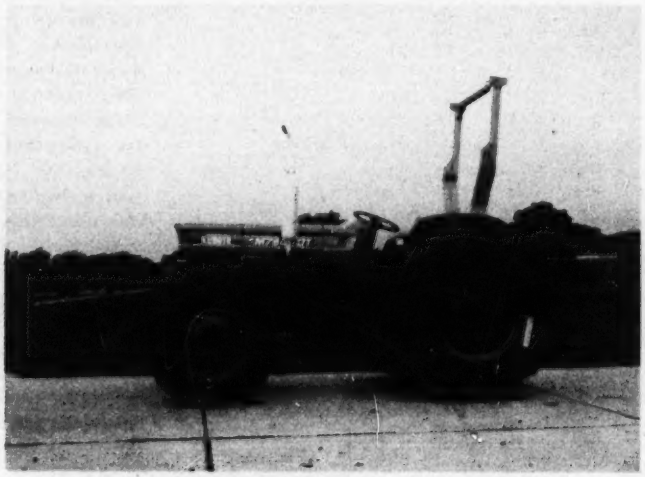
Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 13th (HH-1) Gear											
59.05 (44.04)	3913 (17.40)	5.66 (9.11)	2398	6.10	4.230 (16.014)	0.506 (0.308)	13.96 (2.750)	218 (103.1)	65 (18.1)	78 (25.6)	28.705 (96.932)
MAXIMUM POWER IN SELECTED GEARS											
51.68 (38.54)	7820 (34.78)	2.48 (3.99)	2445	14.96	10th (LH-4) Gear			185 (85.0)	59 (15.0)	62 (16.7)	28.700 (96.916)
61.69 (46.01)	4087 (18.18)	5.66 (9.11)	2401	6.20	13th (HH-1) Gear			198 (92.2)	62 (16.7)	70 (21.1)	28.960 (97.794)
61.17 (45.62)	3335 (14.83)	6.88 (11.07)	2399	5.04	14th (HH-2) Gear			202 (94.2)	62 (16.7)	70 (21.1)	28.960 (97.794)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 18.4-28; 6; 16 (110)	Two 18.4-28; 6; 16 (110)
Ballast	—Liquid (each)	803 lb (364 kg)	None
	—Cast Iron (each)	480 lb (218 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 11.2-24; 6; 18 (125)	Two 11.2-24; 6; 18 (125)
Ballast	—Liquid (each)	242 lb (110 kg)	None
	—Cast Iron (each)	240 lb (109 kg)	None
Height of Drawbar		21 in (535 mm)	21 in (535 mm)
Static Weight with Operator	—Rear	6100 lb (2767 kg)	3535 lb (1603 kg)
	—Front	3410 lb (1547 kg)	2445 lb (1109 kg)
	—Total	9510 lb (4314 kg)	5980 lb (2712 kg)

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1549.

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers



The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1350 — JOHN DEERE 2040 DIESEL 8 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
Maximum Power and Fuel Consumption								
Rated Engine Speed—Two Hours (PTO Speed—567 rpm)								
41.25 (30.76)	2500	2.692 (10.190)	0.461 (0.280)	15.32 (3.019)	190 (87.9)	66 (19.1)	75 (24.1)	28.553 (96.420)
Standard Power Take-off Speed (540 rpm)—One Hour								
40.53 (30.22)	2382	2.594 (9.820)	0.452 (0.275)	15.62 (3.078)	191 (88.3)	67 (19.4)	77 (24.8)	28.570 (96.477)
Varying Power and Fuel Consumption—Two Hours								
35.68 (26.60)	2546	2.417 (9.150)	0.478 (0.291)	14.76 (2.908)	188 (86.7)	67 (19.4)	76 (24.4)	....
0.00 (0.00)	2620	1.062 (4.020)	....	....	181 (82.8)	67 (19.4)	76 (24.7)	....
18.14 (13.53)	2587	1.657 (6.271)	0.645 (0.392)	10.95 (2.157)	184 (84.4)	68 (19.7)	77 (25.0)	....
40.93 (30.52)	2500	2.664 (10.083)	0.460 (0.280)	15.37 (3.027)	190 (88.1)	67 (19.4)	77 (25.0)	....
9.13 (6.80)	2602	1.342 (5.082)	1.039 (0.632)	6.80 (1.339)	182 (83.3)	66 (18.9)	77 (25.0)	....
27.00 (20.14)	2566	2.014 (7.622)	0.527 (0.320)	13.41 (2.642)	187 (86.1)	66 (19.2)	78 (25.6)	....
Av **21.81** *Av* *(16.27)*	**2570**	**1.859** *(7.038)*	**0.602** *(0.366)*	**11.73** *(2.311)*	**185** *(85.2)*	**67** *(19.4)*	**77** *(25.0)*	**28.610** *(96.612)*

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 5th Gear											
31.07 (23.17)	2074 (9.23)	5.62 (9.04)	2496	5.22	2.584 (9.782)	0.587 (0.357)	12.02 (2.368)	189 (87.2)	60 (15.6)	68 (20.0)	28.860 (97.436)
75% of Pull at Maximum Power—Ten Hours 5th Gear											
25.52 (19.03)	1646 (7.32)	5.81 (9.36)	2550	3.98	2.248 (8.509)	0.622 (0.378)	11.35 (2.236)	187 (85.8)	62 (16.6)	72 (21.9)	28.686 (96.868)
50% of Pull at Maximum Power—Two Hours 5th Gear											
17.26 (12.87)	1098 (4.89)	5.89 (9.48)	2557	2.88	1.912 (7.236)	0.782 (0.476)	9.03 (1.779)	189 (86.9)	72 (21.9)	89 (31.4)	28.625 (96.662)
50% of Pull at Reduced Engine Speed—Two Hours 6th Gear											
17.22 (12.84)	1101 (4.90)	5.87 (9.44)	1779	2.70	1.487 (5.628)	0.610 (0.371)	11.58 (2.282)	189 (87.2)	73 (22.3)	89 (31.4)	28.555 (96.426)
MAXIMUM POWER IN SELECTED GEARS											
24.26 (18.09)	4873 (21.68)	1.87 (3.00)	2537	14.89	2nd Gear			186 (85.3)	68 (20.0)	70 (21.1)	28.720 (96.983)
31.38 (23.40)	4175 (18.57)	2.82 (4.54)	2497	11.91	3rd Gear			196 (91.1)	68 (20.0)	78 (25.6)	28.690 (96.882)
32.11 (23.94)	2904 (12.92)	4.15 (6.67)	2499	7.34	4th Gear			193 (89.2)	69 (20.6)	77 (25.0)	28.700 (96.916)
33.31 (24.84)	2220 (9.88)	5.63 (9.05)	2500	5.16	5th Gear			188 (86.7)	59 (15.0)	65 (18.3)	28.890 (97.557)
31.38 (23.40)	1444 (6.42)	8.15 (13.11)	2499	3.74	6th Gear			193 (89.2)	67 (19.4)	79 (26.1)	28.690 (96.882)

LUGGING ABILITY IN 5th GEAR

Crankshaft Speed rpm	2500	2249	2000	1749	1505	1251	1008
Pull—lbs (kN)	2220 (9.88)	2361 (10.50)	2468 (10.98)	2578 (11.47)	2652 (11.79)	2650 (11.79)	2575 (11.46)
Increase in Pull %	0	6	11	16	19	19	16
Power—Hp (kW)	33.31 (24.84)	31.64 (23.59)	29.30 (21.85)	26.66 (19.88)	23.52 (17.54)	19.56 (14.58)	15.33 (11.43)
Speed—Mph (km/h)	5.63 (9.05)	5.03 (8.09)	4.45 (7.16)	3.88 (6.24)	3.33 (5.35)	2.77 (4.45)	2.23 (3.59)
Slip %	5.16	5.86	6.21	6.55	6.89	6.78	6.66

Department of Agricultural Engineering

Dates of Test: May 27 to June 3, 1980

Manufacturer: JOHN DEERE WERKE MANNHEIM, Mannheim, West Germany

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 30 **API service classification** SD/CC-CD **To motor** 1.677 gal *(6.347 l)* **Drained from motor** 1.429 gal *(5.409 l)* **Transmission and final drive lubricant** John Deere Hy-Gard **Total time engine was operated** 49.0 hours

ENGINE Make John Deere Dsl **Type** three cylinder vertical **Serial No.** 3179DL06 435306CD **Crankshaft** lengthwise **Rated rpm** 2500 **Bore and stroke** 4.19" × 4.33" *(106.5 mm × 110 mm)* **Compression ratio** 16.8 to 1 **Displacement** 179 cu in *(2934 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil **Fuel filter** one paper element and one mesh strainer **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type standard **Serial No.** 2040-3695701. **Tread width** rear 53.5" *(1360 mm)* to 73.5" *(1870 mm)* front 49.6" *(1260 mm)* to 79.5" *(2020 mm)* **Wheel base** 74.4" *(1890 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 30.6" *(778 mm)* Vertical distance above roadway 30.9" *(785 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph (km/h)** first 1.5 *(2.4)* second 2.1 *(3.4)* third 3.2 *(5.1)* fourth 4.4 *(7.1)* fifth 5.8 *(9.4)* sixth 8.3 *(13.4)* seventh 12.4 *(19.9)* eighth 17.3 *(27.8)* reverse 1.7 *(2.8)*, 2.5 *(4.0)*, 3.7 *(5.9)*, 5.1 *(8.2)* **Clutch** single dry disc operated by foot pedal **Brakes** wet disc hydraulically operated by two foot pedals which can be locked together **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 110" *(2.79 m)* left 110" *(2.79 m)* (on concrete surface without brake) right 122" *(3.10 m)* left 122" *(3.10 m)* **Turning space diameter** (on concrete surface with brake applied) right 244" *(6.20 m)* left 244" *(6.20 m)* (on concrete surface without brake) right 268" *(6.81 m)* left 268" *(6.81 m)* **Power take-off** 540 rpm at 2382 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 151°F *(66.1°C)*. Five gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	95.5
75% of Pull at Maximum Power—Ten Hours	95.0
50% of Pull at Maximum Power—Two Hours	95.0
50% of Pull at Reduced Engine Speed—Two Hours	91.0
Bystander in 7th gear	85.5

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 14.9-28; 6; 64 14 *(95)*	Two 14.9-28; 6; 14 *(95)*
Ballast	—Liquid (each)	558 lb *(253 kg)*	None
	—Cast Iron (each)	150 lb *(68 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 7.50-16; 6; 36 *(250)*	Two 7.50-16; 6; 36 *(250)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	25 lb *(11 kg)*	None
Height of Drawbar		16.5 in *(420 mm)*	16.5 in *(420 mm)*
Static Weight with Operator	—Rear	4450 lb *(2019 kg)*	3035 lb *(1377 kg)*
	Front	2050 lb *(929 kg)*	2000 lb *(907 kg)*
	Total	6500 lb *(2948 kg)*	5035 lb *(2284 kg)*

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1350.**

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

John Deere 2040 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1351 — JOHN DEERE 2940 DIESEL 16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1038 rpm)								
81.17 (60.53)	2500	5.232 (19.806)	0.455 (0.277)	15.51 (3.036)	188 (86.8)	63 (17.0)	76 (24.4)	28.703 (96.927)
Standard Power Take-off Speed (1000 rpm)—One Hour								
81.46 (60.75)	2407	5.120 (19.383)	0.444 (0.270)	15.91 (3.134)	190 (87.7)	63 (17.2)	78 (25.4)	28.750 (97.084)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
69.75 (52.01)	2529	4.758 (18.010)	0.482 (0.293)	14.66 (2.888)	186 (85.6)	63 (17.2)	79 (26.1)	....
0.00 (0.00)	2632	2.060 (7.799)	....	....	178 (81.1)	64 (17.5)	80 (26.4)	....
35.83 (26.72)	2588	3.322 (12.575)	0.655 (0.398)	10.79 (2.125)	182 (83.6)	64 (17.8)	80 (26.7)	....
81.97 (61.12)	2500	5.234 (19.811)	0.451 (0.274)	15.66 (3.085)	190 (87.8)	64 (17.8)	80 (26.7)	....
18.08 (13.48)	2612	2.672 (10.115)	1.044 (0.635)	6.77 (1.333)	178 (81.4)	64 (17.5)	80 (26.4)	....
52.97 (39.50)	2562	4.006 (15.164)	0.534 (0.325)	13.22 (2.605)	184 (84.4)	64 (17.8)	79 (26.1)	....
Av 43.10 *Av* (32.14)	**2570**	**3.675** (13.913)	**0.602** (0.366)	**11.73** (2.310)	**183** (84.0)	**64** (17.6)	**80** (26.4)	**28.755** (97.161)

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 9th (5L) Gear											
64.18 (47.86)	5144 (22.88)	4.68 (7.53)	2500	7.33	5.009 (18.962)	0.551 (0.335)	12.81 (2.524)	184 (84.4)	66 (18.9)	72 (22.2)	28.855 (97.439)
75% of Pull at Maximum Power—Ten Hours 9th (5L) Gear											
53.03 (39.54)	4118 (18.32)	4.83 (7.77)	2537	5.66	4.453 (16.858)	0.593 (0.361)	11.91 (2.346)	184 (84.3)	68 (20.2)	79 (26.1)	28.864 (97.469)
50% of Pull at Maximum Power—Two Hours 9th (5L) Gear											
36.49 (27.21)	2734 (12.16)	5.01 (8.06)	2576	3.60	3.682 (13.937)	0.713 (0.433)	9.91 (1.952)	182 (83.1)	68 (20.0)	78 (25.3)	28.615 (96.629)
50% of Pull at Reduced Engine Speed—Two Hours 12th (6H) Gear											
36.57 (27.27)	2745 (12.21)	5.00 (8.04)	1461	3.57	2.637 (9.983)	0.509 (0.310)	13.87 (2.732)	183 (83.9)	74 (23.1)	83 (28.3)	28.755 (97.101)
MAXIMUM POWER IN SELECTED GEARS											
51.08 (38.09)	7601 (33.81)	2.52 (4.06)	2534	14.96	5th (3L) Gear			182 (83.1)	64 (17.8)	70 (21.1)	28.540 (96.375)
61.17 (45.61)	7214 (32.09)	3.18 (5.12)	2505	14.68	6th (3H) Gear			188 (86.4)	68 (20.0)	75 (23.9)	28.580 (96.510)
63.89 (47.64)	6951 (30.92)	3.45 (5.55)	2500	12.56	7th (4L) Gear			187 (86.1)	68 (20.0)	75 (23.9)	28.580 (96.510)
67.30 (50.19)	5470 (24.33)	4.61 (7.43)	2500	8.07	8th (4H) Gear			186 (85.6)	68 (20.0)	75 (23.9)	28.570 (96.477)
67.98 (50.69)	5493 (24.44)	4.64 (7.47)	2500	8.13	9th (5L) Gear			187 (85.8)	67 (19.4)	75 (23.9)	28.570 (96.477)
67.65 (50.44)	4195 (18.66)	6.05 (9.73)	2499	5.75	10th (5H) Gear			186 (85.6)	68 (20.0)	75 (23.9)	28.580 (96.510)
67.39 (50.25)	3823 (17.01)	6.61 (10.64)	2500	5.19	11th (6L) Gear			187 (85.8)	68 (20.0)	75 (23.9)	28.590 (96.544)
66.50 (49.59)	2919 (12.99)	8.54 (13.75)	2500	3.75	12th (6H) Gear			186 (85.3)	68 (20.0)	76 (24.4)	28.600 (96.578)

Department of Agricultural Engineering

Dates of Test: May 27 to June 5, 1980

Manufacturer: JOHN DEERE WERKE MANNHEIM, Mannheim, West Germany

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 30 **API service classification** SD/CC-CD **To motor** 2.866 gal *(10.848 l)* **Drained from motor** 2.596 gal *(9.826 l)* **Transmission and final drive lubricant** John Deere Hy-Gard **Front axle lubricant** SAE 90 **Total time engine was operated** 43.0 hours

ENGINE Make John Deere Dsl **Type** six cylinder vertical **Serial No.** 6359DL03 447805CD **Crankshaft** lengthwise **Rated rpm** 2500 **Bore and stroke** 4.19" × 4.33" *(106.5 mm × 110 mm)* **Compression ratio** 16.8 to 1 **Displacement** 359 cu in *(5883 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element and one mesh strainer **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** two thermostats.

CHASSIS: Type front wheel assist **Serial No.** 2940-374919L **Tread width** rear 63" *(1610 mm)* to 91" *(2300 mm)* front 67" *(1700 mm)* to 71" *(1800 mm)* **Wheel base** 101.6" *(2580 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 32.4" *(822 mm)* Vertical distance above roadway 40" *(1016 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled power shift **Advertised speeds mph (km/h)** first 1.5 *(2.3)* second 1.9 *(3.0)* third 2.0 *(3.2)* fourth 2.6 *(4.1)* fifth 2.9 *(4.6)* sixth 3.7 *(5.9)* seventh 3.9 *(6.2)* eighth 4.9 *(8.0)* ninth 5.0 *(8.0)* tenth 6.3 *(10.2)* eleventh 6.9 *(11.0)* twelfth 8.7 *(14.0)* thirteenth 9.9 *(15.9)* fourteenth 12.6 *(20.2)* fifteenth 13.3 *(21.4)* sixteenth 16.9 *(27.3)* reverse 2.3 *(3.7)*, 2.8 *(4.6)*, 3.1 *(5.0)*, 4.0 *(6.3)* ,4.4 *(7.1)*, 5.6 *(9.1)*, 6.0 *(9.6)*, 7.8 *(12.5)* **Clutch** single dry disc operated by foot pedal **Brakes** wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 175" *(4.45 m)* left 175" *(4.45 m)* (on concrete surface without brake) right 209" *(5.30 m)* left 209" *(5.30 m)* **Turning space diameter** (on concrete surface with brake applied) right 367" *(9.32 m)* left 367" *(9.32 m)* (on concrete surface without brake) right 435" *(11.05 m)* left 435" *(11.05 m)* **Power take-off** 1000 rpm at 2407 engine rpm and 540 at 2414 engine rpm.

LUGGING ABILITY IN 9th (5L) GEAR

Crankshaft Speed rpm	2500	2249	2004	1749	1503	1252
Pull—lbs (kN)	5495 (24.44)	5938 (26.41)	6306 (28.05)	6557 (29.17)	6812 (30.30)	6767 (30.10)
Increase in Pull %	0	8	15	19	24	23
Power—Hp (kW)	67.98 (50.69)	65.35 (48.73)	61.02 (45.50)	54.70 (40.79)	48.30 (36.02)	39.98 (29.81)
Speed—Mph (km/h)	4.64 (7.47)	4.13 (6.64)	3.63 (5.84)	3.13 (5.03)	2.66 (4.28)	2.22 (3.57)
Slip %	8.13	8.99	10.28	11.28	12.26	12.13

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	94.0	94.0
75% of Pull at Maximum Power—Ten Hours	-	93.0
50% of Pull at Maximum Power—Two Hours	-	93.0
50% of Pull at Reduced Engine Speed—Two Hours	-	88.5
Bystander in 16th (8H) gear	-	86.5

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 9th (5L) Gear											
65.57 (48.90)	5107 (22.72)	4.82 (7.75)	2500	5.01	5.027 (19.029)	0.541 (0.329)	13.04 (2.570)	186 (85.3)	70 (21.1)	77 (24.7)	28.820 (97.521)
MAXIMUM POWER IN SELECTED GEARS											
56.49 (42.13)	9485 (42.19)	2.25 (3.59)	2522	14.87	4th (2H) Gear			183 (83.6)	64 (17.8)	69 (20.6)	28.550 (96.409)
69.20 (51.61)	5412 (24.07)	4.80 (7.72)	2500	5.44	9th (5L) Gear			186 (85.3)	66 (18.9)	73 (22.8)	28.550 (96.409)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 18.4-34; 8; 16 (110)	Two 18.4-34; 8; 16 (110)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	303 lb (137 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 13.6-24; 8; 14 (95)	Two 13.6-24; 8; 14 (95)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	305 lb (138 kg)	None
Height of Drawbar		19.5 in (495 mm)	19.5 in (495 mm)
Static Weight with Operator—Rear		7090 lb (3216 kg)	6485 lb (2942 kg)
	Front	3560 lb (1615 kg)	2950 lb (1338 kg)
	Total	10650 lb (4831 kg)	9435 lb (4280 kg)

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 151°F (66.3°C). Eight gears were chosen between 15% slip and 16 mph (16.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1351.

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

John Deere 2940 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1352 — HESSTON FIAT 680 DT DIESEL
ALSO HESSTON FIAT 680 DIESEL
8 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
Rated Engine Speed—Two Hours (PTO Speed—1038 rpm)								
62.47 (46.58)	2500	3.634 (13.757)	0.411 (0.250)	17.19 (3.386)	191 (88.3)	68 (20.0)	75 (23.9)	28.863 (97.467)
Standard Power Take-Off Speed (1000 rpm)—One Hour								
61.20 (45.64)	2408	3.517 (13.315)	0.406 (0.247)	17.40 (3.428)	191 (88.2)	67 (19.6)	75 (23.7)	28.865 (97.473)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
55.45 (41.35)	2612	3.258 (12.334)	0.415 (0.252)	17.02 (3.353)	185 (85.0)	68 (19.7)	75 (23.9)	....
0.00 (0.00)	2782	1.100 (4.165)	....	....	168 (75.6)	67 (19.4)	74 (23.6)	....
28.70 (21.40)	2703	2.111 (7.992)	0.520 (0.316)	13.59 (2.678)	174 (78.6)	68 (19.7)	75 (23.9)	....
62.68 (46.74)	2500	3.641 (13.781)	0.410 (0.250)	17.22 (3.391)	193 (89.4)	67 (19.4)	75 (23.9)	....
14.64 (10.92)	2754	1.602 (6.062)	0.772 (0.470)	9.14 (1.801)	169 (76.1)	67 (19.4)	75 (23.9)	....
42.38 (31.60)	2659	2.651 (10.034)	0.442 (0.269)	15.99 (3.149)	180 (82.5)	68 (20.3)	75 (23.9)	....
Av 33.97	**2668**	**2.394**	**0.498**	**14.19**	**178**	**67**	**75**	**28.870**
Av (25.34)		*(9.062)*	*(0.303)*	*(2.796)*	*(81.2)*	*(19.7)*	*(23.8)*	*(97.490)*

DRAWBAR PERFORMANCE
(Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 5th (1 H) Gear											
52.93 (39.47)	3654 (16.25)	5.43 (8.74)	2500	5.63	3.575 (13.535)	0.477 (0.290)	14.80 (2.916)	193 (89.2)	66 (18.9)	74 (23.3)	28.815 (97.504)
75% of Pull at Maximum Power—Ten Hours 5th (1 H) Gear											
42.48 (31.67)	2769 (12.32)	5.75 (9.26)	2610	4.34	2.991 (11.324)	0.497 (0.303)	14.20 (2.797)	191 (88.3)	75 (23.7)	85 (29.2)	28.621 (96.649)
50% of Pull at Maximum Power—Two Hours 5th (1 H) Gear											
29.54 (22.03)	1853 (8.24)	5.98 (9.62)	2675	2.91	2.372 (8.978)	0.567 (0.345)	12.45 (2.453)	185 (85.0)	75 (23.6)	87 (30.6)	28.610 (96.612)
50% of Pull at Reduced Engine Speed—Two Hours 6th (2 H) Gear											
29.64 (22.10)	1858 (8.27)	5.98 (9.63)	1856	2.98	2.000 (7.571)	0.477 (0.290)	14.82 (2.919)	190 (87.8)	78 (25.3)	92 (33.3)	28.600 (96.578)
MAXIMUM POWER IN SELECTED GEARS											
49.65 (37.02)	6252 (27.81)	2.98 (4.79)	2541	14.68	3rd (3 L) Gear			191 (88.3)	66 (18.9)	72 (22.2)	28.750 (97.084)
52.42 (39.09)	4796 (21.34)	4.10 (6.60)	2501	7.88	4th (4 L) Gear			195 (90.6)	74 (23.3)	82 (27.8)	28.630 (96.679)
53.65 (40.01)	3697 (16.45)	5.44 (8.76)	2500	5.53	5th (1 H) Gear			198 (91.9)	73 (22.8)	79 (26.1)	28.620 (96.645)
52.35 (39.03)	2454 (10.92)	8.00 (12.87)	2501	3.77	6th (2 H) Gear			196 (91.1)	74 (23.3)	84 (28.9)	28.610 (96.612)

LUGGING ABILITY IN 5th (1 H) GEAR

Crankshaft Speed rpm	2500	2253	2001	1750	1503	1256
Pull—lbs (kN)	3697 (16.45)	3818 (16.98)	3947 (17.56)	3973 (17.67)	3972 (17.67)	3803 (16.91)
Increase in Pull %	0	3	7	7	7	3
Power—Hp (kW)	53.65 (40.01)	49.80 (37.14)	45.61 (34.01)	40.13 (29.92)	34.44 (25.68)	27.62 (20.60)
Speed—Mph (km/h)	5.44 (8.76)	4.89 (7.87)	4.33 (6.97)	3.79 (6.10)	3.25 (5.23)	2.72 (4.38)
Slip %	5.53	5.80	5.94	5.94	5.99	5.94

Department of Agricultural Engineering

Dates of Test: May 30—June 10, 1980

Manufacturer: FIAT TRATTORI S.p.A. Via Pico della Mirandola 72-41100 Modena, Italy

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 20W-40 **API service classification** Mil-L-2104B EP **To motor** 2.538 gal *(9.606 l)* **Drained from motor** 2.361 gal *(8.936 l)* **Transmission and final drive lubricant** Oliofiat AF 87 **Front axle lubricant** Oliofiat AMBRA 20W-40 **Total time engine was operated** 42.5 hours.

ENGINE Make Fiat Dsl **Type** four cylinder vertical **Serial No.** 8045-02-270-00-1598 **Crankshaft** lengthwise **Rated rpm** 2500 **Bore and stroke** 3.937" × 4.331" *(100 mm × 110 mm)* **Compression ratio** 17.0 to 1 **Displacement** 211 cu in *(3456 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow paper cartridge **Fuel filter** two paper cartridges and one gauze screen **Muffler** vertical **Cooling medium temperature control** one thermostat

CHASSIS: Type front wheel assist **Serial No.** 680DT/8-036386 **Tread width** rear 59.1" *(1500 mm)* to 76.0" *(1930 mm)* front 55.1" *(1400 mm)* to 82.7" *(2100 mm)* **Wheel base** 89.8" *(2280 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 31.3" *(794 mm)* Vertical distance above roadway 36.3" *(922 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** Selective gear fixed ratio **Advertised speeds mph (km/h)** first 1.6 *(2.5)* second 2.3 *(3.7)* third 3.4 *(5.5)* fourth 4.4 *(7.1)* fifth 5.7 *(9.2)* sixth 8.2 *(13.2)* seventh 12.3 *(19.8)* eighth 15.9 *(25.6)* reverse 2.1 *(3.3)*, 7.4 *(11.9)* **Clutch** dual dry disc operated by foot pedal **Brakes** wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 191" *(4.85 m)* left 189" *(4.80 m)* (on concrete surface without brake) right 214" *(5.44 m)* left 213" *(5.41 m)* **Turning space diameter** (on concrete surface with brake applied) right 393" *(9.98 m)* left 389" *(9.88 m)* (on concrete surface without brake) right 438" *(11.13 m)* left 436" *(11.07 m)* **Power take-off** 1000 rpm at 2408 engine rpm and 540 rpm at 2230 engine rpm.

REPAIRS and ADJUSTMENTS: The hydraulic hitch control level linkage required adjustment following the drawbar tests.

TRACTOR SOUND LEVEL WITH CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	84.0	83.0
75% of Pull at Maximum Power—Ten Hours	–	81.5
50% of Pull at Maximum Power—Two Hours	–	81.5
50% of Pull at Reduced Engine Speed—Two Hours	–	78.5
Bystander in 8th (4 H) gear	–	87.0

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 5th (1 H) Gear											
53.33 *(39.77)*	3571 *(15.88)*	5.60 *(9.01)*	2500	3.81	3.593 *(13.602)*	0.476 *(0.289)*	14.84 *(2.924)*	194 *(90.0)*	66 *(18.6)*	75 *(23.9)*	28.925 *(97.673)*
MAXIMUM POWER IN SELECTED GEARS											
48.88 *(36.45)*	8923 *(39.69)*	2.05 *(3.31)*	2586	14.88	2nd (2 L) Gear			185 *(84.7)*	66 *(18.9)*	71 *(21.7)*	28.750 *(97.084)*
53.76 *(40.09)*	4693 *(20.88)*	4.30 *(6.91)*	2503	4.67	4th (4 L) Gear			197 *(91.4)*	74 *(23.3)*	83 *(28.3)*	28.620 *(96.645)*
54.87 *(40.92)*	3674 *(16.34)*	5.60 *(9.01)*	2500	3.81	5th (1 H) Gear			194 *(90.0)*	66 *(18.9)*	75 *(23.9)*	28.910 *(97.625)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 13.6R38; 6; 22 *(150)*	Two 13.6R38; 6; 22 *(150)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	588 lb *(267 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 11.2R28; 8; 24 *(165)*	Two 11.2R28; 8; 24 *(165)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	743 lb *(337 kg)*	None
Height of Drawbar		21 in *(535 mm)*	21 in *(535 mm)*
Static Weight with Operator—Rear		5950 lb *(2699 kg)*	4775 lb *(2166 kg)*
—Front		4050 lb *(1837 kg)*	2565 lb *(1163 kg)*
—Total		10000 lb *(4536 kg)*	7340 lb *(3329 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump return was 143°F *(61.6°C)*. Four gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1352.**

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

Hesston Fiat 680 DT Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1353 — HESSTON FIAT 880 DT-5 DIESEL ALSO HESTON FIAT 880-5 DIESEL 12 SPEED

POWER TAKE-OFF PERFORMANCE

	Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION									
Rated Engine Speed—Two Hours (PTO Speed—1038 rpm)									
	81.32 (60.64)	2500	5.070 (19.192)	0.440 (0.268)	16.04 (3.160)	187 (86.2)	62 (16.8)	75 (23.9)	29.140 (98.401)
Standard Power Take-Off Speed (1000 rpm)—One Hour									
	80.95 (60.37)	2410	4.975 (18.831)	0.434 (0.264)	16.27 (3.206)	188 (86.6)	62 (16.7)	75 (23.9)	29.120 (98.334)
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
	70.80 (52.80)	2558	4.410 (16.692)	0.440 (0.268)	16.06 (3.163)	178 (81.4)	62 (16.7)	75 (23.9)	....
	0.00 (0.00)	2717	1.542 (5.837)	....	....	164 (73.6)	62 (16.7)	74 (23.3)	....
	36.25 (27.03)	2618	2.825 (10.694)	0.550 (0.335)	12.83 (2.528)	170 (76.7)	62 (16.7)	74 (23.6)	....
	81.23 (60.57)	2500	5.081 (19.233)	0.442 (0.269)	15.99 (3.150)	188 (86.7)	62 (16.9)	75 (23.9)	....
	18.57 (13.85)	2683	2.234 (8.458)	0.850 (0.517)	8.31 (1.637)	165 (73.9)	62 (16.7)	74 (23.6)	....
	53.35 (39.78)	2572	3.577 (13.540)	0.475 (0.288)	14.92 (2.938)	178 (80.8)	63 (17.2)	75 (23.9)	....
Av	**45.37**	**2608**	**3.278**	**0.534**	**13.23**	**174**	**62**	**75**	**29.113**
Av	***(32.34)***		***(12.409)***	***(0.325)***	***(2.606)***	***(78.8)***	***(16.8)***	***(23.7)***	***(98.311)***

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th (4 N) Gear											
67.64 (50.44)	4857 (21.61)	5.22 (8.40)	2500	6.57	5.009 (18.962)	0.523 (0.318)	13.50 (2.660)	183 (83.9)	64 (17.8)	76 (24.2)	29.015 (97.979)
75% of Pull at Maximum Power—Ten Hours 8th (4 N) Gear											
55.33 (41.26)	3789 (16.85)	5.48 (8.81)	2576	4.93	4.117 (15.585)	0.525 (0.320)	13.44 (2.648)	180 (82.2)	62 (16.7)	81 (27.1)	28.951 (97.763)
50% of Pull at Maximum Power—Two Hours 8th (4 N) Gear											
38.14 (28.44)	2541 (11.30)	5.63 (9.06)	2606	3.33	3.275 (12.396)	0.606 (0.369)	11.65 (2.295)	173 (78.1)	60 (15.3)	81 (26.9)	29.000 (97.929)
50% of Pull at Reduced Engine Speed—Two Hours 9th (1 H) Gear											
37.90 (28.26)	2529 (11.25)	5.62 (9.04)	1822	3.52	2.620 (9.916)	0.488 (0.297)	14.47 (2.850)	175 (79.2)	67 (19.2)	88 (30.8)	28.995 (97.912)
MAXIMUM POWER IN SELECTED GEARS											
62.73 (46.78)	7554 (33.60)	3.11 (5.01)	2558	14.87	6th (2 N) Gear			177 (80.6)	60 (15.6)	69 (20.6)	29.020 (97.996)
68.12 (50.80)	6380 (28.38)	4.00 (6.44)	2498	10.25	7th (3 N) Gear			186 (85.6)	58 (14.4)	78 (25.6)	29.050 (98.097)
70.27 (52.40)	5053 (22.48)	5.21 (8.39)	2500	6.67	8th (4 N) Gear			185 (85.0)	58 (14.4)	75 (23.9)	29.080 (98.199)
70.73 (52.74)	3476 (15.46)	7.63 (12.28)	2499	4.45	9th (1 H) Gear			187 (86.1)	59 (15.0)	79 (26.1)	29.040 (98.064)
69.36 (51.72)	2581 (11.48)	10.08 (16.22)	2500	3.26	10th (2 H) Gear			184 (84.2)	58 (14.4)	79 (26.1)	29.030 (98.030)

Department of Agricultural Engineering

Dates of Test: May 30—June 12, 1980

Manufacturer: FIAT TRATTORI S.p.A. Via Pico della Mirandola 72-41100 Modena, Italy

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 20W-40 **API service classification** Mil-L-2104B EP **To motor** 2.847 gal *(10.776 l)* **Drained from motor** 2.755 gal *(10.428 l)* **Transmission and final drive lubricant** Oliofiat AF 87 **Front axle lubricant** Oliofiat AMBRA 20W-40 **Total time engine was operated** 43.0 hours.

ENGINE Make Fiat Dsl **Type** five cylinder vertical **Serial No.** 8055-04-200-00-0005 **Crankshaft** lengthwise **Rated rpm** 2500 **Bore and stroke** 4.055" × 4.331" *(103 mm × 110 mm)* **Compression ratio** 17 to 1 **Displacement** 280 cu in *(4580 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** two full flow paper cartridges **Fuel filter** two paper cartridges and one gauze screen **Muffler** vertical **Cooling medium temperature control** one thermostat

CHASSIS: Type front wheel assist **Serial No.** 880DT/12/2-893199 **Tread width** rear 59.1" *(1500 mm)* to 86.6" *(2200 mm)* front 67.3" *(1710 mm)* to 84.4" *(2145 mm)* **Wheel base** 95.3" *(2420 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 35.0" *(890 mm)* Vertical distance above roadway 36.7" *(933 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** Selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 0.9 *(1.5)* second 1.2 *(2.0)* third 1.5 *(2.4)* fourth 1.9 *(3.1)* fifth 2.7 *(4.4)* sixth 3.5 *(5.7)* seventh 4.4 *(7.1)* eighth 5.5 *(8.9)* ninth 7.9 *(12.7)* tenth 10.3 *(16.6)* eleventh 12.9 *(20.7)* twelfth 16.1 *(25.9)* reverse 0.9 *(1.4)*, 2.6 *(4.1)*, 7.5 *(12.0)* **Clutch** dual dry disc operated by foot pedal **Brakes** wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 197" *(5.00 m)* left 200" *(5.08 m)* (on concrete surface without brake) right 228" *(5.79 m)* left 232" *(5.89 m)* **Turning space diameter** (on concrete surface with brake applied) right 406" *(10.31 m)* left 412" *(10.46 m)* (on concrete surface without brake) right 468" *(11.89 m)* left 476" *(12.09 m)* **Power take-off** 1000 rpm at 2410 engine rpm and 540 rpm at 2125 engine rpm.

LUGGING ABILITY IN 8th (4 N) GEAR

Crankshaft Speed rpm	2500	2252	1997	1746	1493	1246	995
Pull—lbs *(kN)*	5053 *(22.48)*	5464 *(24.30)*	5660 *(25.18)*	5800 *(25.80)*	5864 *(26.08)*	5903 *(26.26)*	5303 *(23.59)*
Increase in Pull %	0	8	12	15	16	17	5
Power—Hp *(kW)*	70.27 *(52.40)*	67.83 *(50.58)*	62.06 *(46.27)*	55.32 *(41.25)*	47.69 *(35.56)*	39.97 *(29.81)*	29.11 *(21.70)*
Speed—Mph *(km/h)*	5.21 *(8.39)*	4.66 *(7.49)*	4.11 *(6.62)*	3.58 *(5.76)*	3.05 *(4.91)*	2.54 *(4.09)*	2.06 *(3.31)*
Slip %	6.67	7.51	7.78	8.46	8.60	8.73	7.51

TRACTOR SOUND LEVEL WITH CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	84.5	87.5
75% of Pull at Maximum Power—Ten Hours	–	85.5
50% of Pull at Maximum Power—Two Hours	–	84.0
50% of Pull at Reduced Engine Speed—Two Hours	–	80.0
Bystander in 12th (4 H) gear	–	88.5

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 8th (4 N) Gear											
67.78 *(50.54)*	4685 *(20.84)*	5.42 *(8.73)*	2499	4.46	4.956 *(18.761)*	0.516 *(0.314)*	13.68 *(2.694)*	188 *(86.4)*	68 *(20.0)*	85 *(29.2)*	29.015 *(97.979)*
MAXIMUM POWER IN SELECTED GEARS											
48.25 *(35.98)*	10598 *(47.14)*	1.71 *(2.75)*	2578	14.97	4th (4 L) Gear			170 *(76.7)*	59 *(15.0)*	67 *(19.4)*	29.030 *(98.030)*
70.62 *(52.66)*	6185 *(27.51)*	4.28 *(6.89)*	2500	5.72	7th (3 N) Gear			186 *(85.6)*	58 *(14.4)*	77 *(25.0)*	29.050 *(98.0>7)*
70.35 *(52.46)*	4857 *(21.60)*	5.43 *(8.74)*	2499	4.24	8th (4 N) Gear			186 *(85.3)*	58 *(14.4)*	76 *(24.4)*	29.060 *(98.131)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4R34; 8; 20 *(140)*	Two 18.4R34; 8; 20 *(140)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	618 lb *(280 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 12.4R28; 8; 26 *(180)*	Two 12.4R28; 8; 26 *(180)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	788 lb *(357 kg)*	None
Height of Drawbar		22.5 in *(570 mm)*	22.5 in *(570 mm)*
Static Weight with Operator—Rear		6755 lb *(3064 kg)*	5520 lb *(2504 kg)*
—Front		4805 lb *(2180 kg)*	3230 lb *(1465 kg)*
—Total		11560 lb *(5244 kg)*	8750 lb *(3969 kg)*

REPAIRS and ADJUSTMENTS: The manuall operated governor control linkage required ad justment during the drawbar tests.

REMARKS: All test results were determine from observed data obtained in accordance wit SAE and ASAE test code or official Nebraska te procedure. Temperature at injection pump re turn was 151°F *(65.9°C)*. Five gears were chose between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a tru and correct report of official Tractor Test 1353.

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineer

Hesston Fiat 880 DT-5 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1354 — HESSTON FIAT 980 DT DIESEL ALSO HESTON FIAT 980 DIESEL 16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—996 rpm)								
91.12 (67.95)	2400	5.392 (20.412)	0.418 (0.254)	16.90 (3.329)	195 (90.7)	62 (16.6)	75 (23.8)	28.943 (97.737)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
81.48 (60.76)	2521	4.936 (18.686)	0.428 (0.260)	16.51 (3.252)	189 (87.2)	61 (16.1)	74 (23.3)	....
0.00 (0.00)	2682	1.623 (6.143)	....	....	177 (80.6)	62 (16.4)	74 (23.6)	....
42.05 (31.36)	2610	3.127 (11.835)	0.525 (0.319)	13.45 (2.649)	182 (83.1)	62 (16.7)	76 (24.4)	....
91.70 (68.38)	2400	5.395 (20.423)	0.415 (0.253)	17.00 (3.348)	192 (88.9)	62 (16.7)	76 (24.4)	....
21.49 (16.02)	2652	2.370 (8.973)	0.779 (0.474)	9.06 (1.786)	177 (80.6)	62 (16.7)	76 (24.7)	....
61.95 (46.20)	2559	4.010 (15.180)	0.457 (0.278)	15.45 (3.043)	188 (86.9)	62 (16.7)	78 (25.3)	....
Av 49.78	**2570**	**3.577**	**0.507**	**13.92**	**184**	**62**	**76**	**28.953**
Av (37.12)		***(13.540)***	***(0.309)***	***(2.741)***	***(84.5)***	***(16.5)***	***(24.3)***	***(97.771)***

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 12th (4 N) Gear											
74.93 (55.87)	5633 (25.06)	4.99 (8.03)	2400	7.11	5.257 (19.900)	0.495 (0.301)	14.25 (2.808)	193 (89.2)	57 (13.9)	65 (18.1)	29.105 (98.283)
75% of Pull at Maximum Power—Ten Hours 12th (4 N) Gear											
62.30 (46.46)	4363 (19.41)	5.36 (8.62)	2530	5.39	4.584 (17.354)	0.520 (0.316)	13.59 (2.677)	198 (92.1)	72 (22.4)	87 (30.3)	28.715 (96.966)
50% of Pull at Maximum Power—Two Hours 12th (4 N) Gear											
43.15 (32.18)	2906 (12.93)	5.57 (8.96)	2583	5.65	3.522 (13.332)	0.576 (0.351)	12.25 (2.413)	190 (87.8)	70 (20.8)	83 (28.1)	28.840 (97.388)
50% of Pull at Reduced Engine Speed—Two Hours 13th (1 H) Gear											
43.02 (32.08)	2913 (12.96)	5.54 (8.91)	1797	3.61	2.991 (11.324)	0.491 (0.299)	14.38 (2.833)	192 (88.9)	71 (21.4)	84 (28.9)	28.790 (97.220)
MAXIMUM POWER IN SELECTED GEARS											
68.29 (50.92)	8351 (37.15)	3.07 (4.93)	2511	14.65	10th (2 N) Gear			188 (86.4)	57 (13.9)	60 (15.6)	29.080 (98.199)
73.58 (54.87)	7218 (32.11)	3.82 (6.15)	2399	11.04	11th (3 N) Gear			199 (92.8)	68 (20.0)	77 (25.0)	28.850 (97.422)
77.42 (57.74)	5812 (25.85)	5.00 (8.04)	2398	6.83	12th (4 N) Gear			198 (91.9)	68 (20.0)	77 (25.0)	28.850 (97.422)
77.34 (57.67)	3967 (17.65)	7.31 (11.77)	2400	4.61	13th (1 H) Gear			202 (94.2)	68 (20.0)	77 (25.0)	28.850 (97.422)
75.83 (56.54)	2946 (13.11)	9.65 (15.53)	2402	3.65	14th (2 H) Gear			197 (91.7)	69 (20.6)	80 (26.7)	28.850 (97.422)

LUGGING ABILITY IN 12th (4 N) GEAR

Crankshaft Speed rpm	2398	2162	1915	1689	1432	1194	954
Pull—lbs (kN)	5812 (25.85)	6113 (27.19)	6193 (27.55)	6159 (27.40)	6166 (27.43)	6439 (28.64)	5779 (25.71)
Increase in Pull %	0	5	7	6	6	11	-1
Power—Hp (kW)	77.42 (57.74)	72.83 (54.31)	65.25 (48.65)	57.24 (42.69)	48.56 (36.21)	42.02 (31.34)	30.52 (22.76)
Speed—Mph (km/h)	5.00 (8.04)	4.47 (7.19)	3.95 (6.36)	3.49 (5.61)	2.95 (4.75)	2.45 (3.94)	1.98 (3.19)
Slip %	6.83	7.53	7.80	7.80	7.66	8.48	7.11

Department of Agricultural Engineering

Dates of Test: June 2-17, 1980

Manufacturer: FIAT TRATTORI S.p.A. Via Pico della Mirandola 72-41100 Modena, Italy

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 20W-40 **API service classification** Mil-L-2104B EP **To motor** 2.987 gal *(11.306 l)* **Drained from motor** 2.646 gal *(10.015 l)* **Transmission and final drive lubricant** Oliofiat AF 87 **Front axle lubricant** Oliofiat AMBRA 20W-40 **Total time engine was operated** 48.0 hours.

ENGINE Make Fiat Diesel **Type** six cylinder vertical **Serial No.** 8065-02*217-996175* **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** 3.937" × 4.33" *(100 mm × 110 mm)* **Compression ratio** 17 to 1 **Displacement** 316 cu in *(5178 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** two full flow paper cartridges **Fuel filter** two paper cartridges and one gauze screen **Muffler** vertical **Cooling medium temperature control** one thermostat

CHASSIS: Type front wheel assist **Serial No.** 980DT/16*702457* **Tread width** rear 59.1" *(1500 mm)* to 86.6" *(2200 mm)* front 67.3" *(1710 mm)* to 84.6" *(2150 mm)* **Wheel base** 99.6" *(2530 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 38.4" *(975 mm)* Vertical distance above roadway 37.8" *(960 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** Selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 0.3 *(0.5)* second 0.4 *(0.6)* third 0.5 *(0.8)* fourth 0.6 *(1.0)* fifth 0.9 *(1.4)* sixth 1.2 *(1.9)* seventh 1.4 *(2.3)* eighth 1.8 *(2.9)* ninth 2.6 *(4.2)* tenth 3.4 *(5.5)* eleventh 4.2 *(6.8)* twelfth 5.3 *(8.5)* thirteenth 7.6 *(12.2)* fourteenth 9.9 *(15.9)* fifteenth 12.4 *(19.9)* sixteenth 15.5 *(24.9)* reverse 0.3 *(0.5)*, 0.9 *(1.4)*, 2.5 *(4.0)*, 7.2 *(11.5)* **Clutch** dual dry disc operated by foot pedal **Brakes** wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 201" *(5.11 m)* left 201" *(5.11 m)* (on concrete surface without brake) right 232" *(5.89 m)* left 230" *(5.84 m)* **Turning space diameter** (on concrete surface with brake applied) right 414" *(10.51 m)* left 414" *(10.51 m)* (on concrete surface without brake) right 476" *(12.09 m)* left 472" *(11.99 m)* **Power take-off** 996 rpm at 2400 engine rpm and 540 rpm at 2125 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL WITH CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	86.5	86.5
75% of Pull at Maximum Power—Ten Hours	–	84.0
50% of Pull at Maximum Power—Two Hours	–	82.0
50% of Pull at Reduced Engine Speed—Two Hours	–	82.0
Bystander in 16th (4 H) gear	–	86.5

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 12th (4 N) Gear											
76.32 (56.91)	5539 (24.64)	5.17 (8.31)	2400	5.04	5.510 (20.101)	0.491 (0.299)	14.37 (2.831)	194 (90.0)	59 (15.0)	70 (20.8)	29.115 (98.317)
MAXIMUM POWER IN SELECTED GEARS											
71.25 (53.13)	11264 (50.11)	2.37 (3.82)	2503	14.88	9th (1 N) Gear			191 (88.3)	58 (14.4)	61 (16.1)	29.080 (98.199)
79.86 (59.55)	7345 (32.67)	4.08 (6.56)	2399	6.35	11th (3 N) Gear			201 (93.6)	68 (20.0)	77 (25.0)	28.850 (97.422)
78.37 (58.44)	5659 (25.17)	5.19 (8.36)	2400	4.59	12th (4 N) Gear			201 (93.9)	65 (18.3)	73 (22.8)	28.860 (97.456)

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 18.4R34; 8; 20 (140)	Two 18.4R34; 8; 20 (140)
Ballast	—Liquid (each)	900 lb (408 kg)	None
	—Cast Iron (each)	300 lb (136 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 12.4R28; 8; 26 (180)	Two 12.4R28; 8; 26 (180)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	698 lb (317 kg)	None
Height of Drawbar		22.5 in (570 mm)	22.5 in (570 mm)
Static Weight with Operator	—Rear	7820 lb (3547 kg)	5420 lb (2458 kg)
	—Front	4825 lb (2189 kg)	3430 lb (1556 kg)
	—Total	12645 lb (5736 kg)	8850 lb (4014 kg)

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump return was 145°F (62.6°C). Five gears were chosen between 15% slip and 10 mph (16.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1354.**

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

Hesston Fiat 980 DT Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1355 — STEIGER PTA-325 DIESEL 10 SPEED

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 6th (5 L) Gear											
263.70 (196.64)	14573 (64.82)	6.79 (10.92)	2099	3.46	18.497 (70.018)	0.495 (0.301)	14.26 (2.808)	196 (90.8)	70 (21.1)	88 (31.4)	28.835 (97.571)
75% of Pull at Maximum Power—Ten Hours 6th (5 L) Gear											
219.04 (163.34)	11315 (50.33)	7.26 (11.68)	2230	2.67	16.284 (61.643)	0.525 (0.319)	13.45 (2.650)	184 (84.2)	58 (14.3)	66 (18.8)	29.025 (98.013)
50% of Pull at Maximum Power—Two Hours 6th (5 L) Gear											
151.89 (113.26)	7536 (33.52)	7.56 (12.16)	2296	1.56	13.151 (49.783)	0.611 (0.372)	11.55 (2.275)	186 (85.3)	70 (20.8)	88 (30.8)	28.815 (97.304)
50% of Pull at Reduced Engine Speed—Two Hours 8th (3 H) Gear											
151.54 (113.00)	7555 (33.61)	7.52 (12.10)	1574	1.90	10.266 (38.862)	0.478 (0.291)	14.76 (2.908)	180 (82.2)	58 (14.4)	64 (17.5)	29.020 (97.996)
MAXIMUM POWER IN SELECTED GEARS											
149.29 (111.33)	31876 (141.79)	1.76 (2.83)	2277	14.91	1st (1L) Gear			182 (83.3)	64 (17.8)	65 (18.3)	28.820 (97.321)
251.17 (187.30)	30581 (136.03)	3.08 (4.96)	2099	12.19	2nd (2L) Gear			187 (86.1)	65 (18.3)	66 (18.9)	28.820 (97.321)
259.42 (193.45)	23734 (105.58)	4.10 (6.60)	2100	6.43	3rd (1H) Gear			187 (85.8)	58 (14.4)	61 (16.1)	28.980 (97.861)
266.90 (199.03)	24144 (107.40)	4.15 (6.67)	2100	6.58	4th (3L) Gear			187 (85.8)	58 (14.4)	61 (16.1)	28.960 (97.794)
274.88 (204.98)	19305 (85.87)	5.34 (8.59)	2100	4.81	5th (4L) Gear			186 (85.6)	58 (14.4)	61 (16.1)	28.930 (97.692)
272.55 (203.24)	15089 (67.12)	6.77 (10.90)	2101	3.62	6th (5L) Gear			186 (85.6)	58 (14.4)	60 (15.6)	28.880 (97.523)
273.56 (204.00)	13081 (58.19)	7.84 (12.62)	2102	3.05	7th (2H) Gear			186 (85.6)	58 (14.4)	62 (16.7)	29.010 (97.962)
269.98 (201.32)	10141 (45.11)	9.98 (16.07)	2101	2.39	8th (3H) Gear			187 (86.1)	59 (15.0)	64 (17.8)	29.030 (98.030)

LUGGING ABILITY IN 6th (5 L) GEAR

Crankshaft Speed rpm	2101	1884	1680
Pull—lbs (kN)	15089 (67.12)	17210 (76.55)	18426 (81.96)
Increase in Pull %	0	14	22
Power—Hp (kW)	272.55 (203.24)	276.69 (206.33)	263.03 (196.14)
Speed—Mph (km/h)	6.77 (10.90)	6.03 (9.70)	5.35 (8.61)
Slip %	3.62	4.26	4.73

At 1500 RPM the automatic transmission shifted down to 5th (4L) gear and the test was terminated

TRACTOR SOUND LEVEL WITH CAB

	dB(A)
Maximum Available Power—Two Hours	75.5
75% of Pull at Maximum Power—Ten Hours	75.5
50% of Pull at Maximum Power—Two Hours	75.5
50% of Pull at Reduced Engine Speed—Two Hours	75.5
Bystander in 10th (5H) gear	100.0

Department of Agricultural Engineering

Dates of Test: June 16-23, 1980

Manufacturer: STEIGER TRACTOR, INC., 3101 First Ave. North, Fargo, North Dakota 58102

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 30 **API service classification** SB/SE-CA/CD **To motor** 7.554 gal *(28.592 l)* **Drained from motor** 6.193 gal *(23.441 l)* **Transmission lubricant** hydraulic transmission fluid type C-3 (Dextron) **Dropbox lubricant** 303 or equivalent **Hydraulic oil** SAE 10 hydraulic fluid, 303 or equivalent **Final drive lubricant** SAE 80W90 **Total time engine was operated** 35.5 hours.

ENGINE Make Caterpillar Dsl **Type** six cylinder vertical with turbocharger **Serial No.** 90U 11096 **Crankshaft** lengthwise **Rated rpm** 2100 **Bore and stroke** 5.4" × 6.5" *(137 mm × 165 mm)* **Compression ratio** 14.5 to 1 **Displacement** 893 cu in *(14634 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow paper cartridge **Oil cooler** engine coolant heat exchangers for crankcase and transmission oil, radiator for hydraulic oil **Fuel filter** one paper cartridge **Muffler** none **Cooling medium temperature control** one thermostat.

CHASSIS: Type four wheel drive with duals **Serial No.** 150-00076 **Tread width** rear 79" *(2007 mm)* to 136.4" *(3464 mm)* front 79.0" *(2007 mm)* to 136.4" *(3464 mm)* **Wheel base** 132.5" *(3366 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 77.4" *(1966 mm)* Vertical distance above roadway 45.5" *(1156 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with automatic power shift and torque converter lockup **Advertised speeds mph (km/h)** first 1.8 *(2.9)* second 3.4 *(5.4)* third 4.2 *(6.7)* fourth 4.2 *(6.8)* fifth 5.4 *(8.6)* sixth 6.7 *(10.8)* seventh 7.7 *(12.4)* eighth 9.8 *(15.7)* ninth 12.3 *(19.8)* tenth 15.4 *(24.9)* reverse 2.3 *(3.6)*, 5.2 *(8.4)* **Clutch** none **Brakes** multiple dry disc hydraulically operated by foot pedal or mechanically

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 23.1-34; 8; inner 14 *(95)* outer 12 *(85)*	Four 23.1-34; 8; inner 14 *(95)* outer 12 *(85)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Four 23.1-34; 8; inner 14 *(95)* outer 12 *(85)*	Four 23.1-34; 8; inner 14 *(95)* outer 12 *(85)*
Ballast	—Liquid (each inner)	1570 lb *(712 kg)*	None
	—Cast Iron (each)	None	None
Height of Drawbar		14.5 in *(370 mm)*	14.5 in *(370 mm)*
Static Weight with Operator—Rear		12960 lb *(5879 kg)*	12960 lb *(5879 kg)*
	Front	21000 lb *(9525 kg)*	17860 lb *(8101 kg)*
	Total	33960 lb *(15404 kg)*	30820 lb *(13980 kg)*

by hand lever **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 257" *(6.53 m)* left 261.5" *(6.64 m)* **Turning space diameter** (on concrete surface without brake) right 537" *(13.64 m)* left 546" *(13.87 m)* **Power take-off** none.

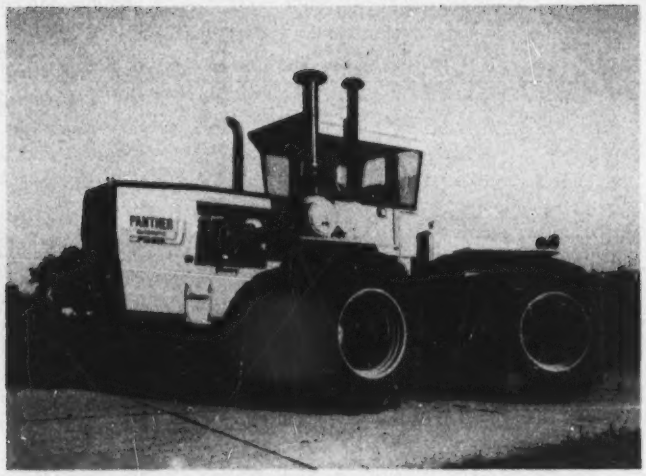
REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 163°F *(72.8°C)*. Eight gears were chosen between 15% slip and 10 mph *(16.1 km/h)*. During preliminary drawbar tests an air conditioner line developed a leak and freon was lost.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1355.

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers



Steiger PTA-325 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director

NEBRASKA TRACTOR TEST 1356 — VERSATILE 835 DIESEL 12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1009 rpm)								
198.23 (147.82)	2100	13.103 (49.601)	0.467 (0.284)	15.13 (2.980)	182 (83.5)	65 (18.1)	75 (23.8)	28.923 (97.670)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
174.33 (130.00)	2172	12.379 (46.859)	0.501 (0.305)	14.08 (2.774)	181 (82.8)	64 (17.8)	75 (23.9)	.....
0.00 (0.00)	2280	5.038 (19.072)	....	....	177 (80.6)	63 (17.2)	75 (23.9)	....
89.25 (66.56)	2225	8.534 (32.306)	0.675 (0.411)	10.46 (2.060)	178 (81.4)	63 (17.2)	75 (23.9)	....
197.64 (147.38)	2100	13.093 (49.561)	0.468 (0.285)	15.10 (2.974)	182 (83.6)	63 (17.2)	75 (23.9)	....
44.98 (33.54)	2248	6.512 (24.652)	1.022 (0.622)	6.91 (1.361)	178 (80.8)	63 (17.2)	75 (23.9)	....
132.31 (98.67)	2200	10.641 (40.282)	0.568 (0.345)	12.43 (2.449)	179 (81.7)	63 (17.2)	75 (23.9)	....
Av 106.42 *Av (79.36)*	**2204**	**9.366** *(35.455)*	**0.622** *(0.378)*	**11.36** *(2.238)*	**179** *(81.8)*	**63** *(17.3)*	**75** *(23.9)*	**28.993** *(97.906)*

DRAWBAR PERFORMANCE AT 2100 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (2-3) Gear											
171.41 (127.82)	10488 (46.63)	6.13 (9.86)	2100	3.32	13.027 (49.314)	0.537 (0.326)	13.16 (2.592)	182 (83.3)	62 (16.7)	72 (21.9)	29.035 (98.047)
75% of Pull at Maximum Power—Ten Hours 7th (2-3) Gear											
138.81 (103.51)	8048 (35.80)	6.47 (10.41)	2193	2.27	11.696 (44.276)	0.595 (0.362)	11.87 (2.338)	183 (83.6)	77 (25.0)	86 (29.9)	28.852 (97.429)
50% of Pull at Maximum Power—Two Hours 7th (2-3) Gear											
95.15 (70.95)	5397 (24.01)	6.61 (10.64)	2223	1.51	9.806 (37.120)	0.728 (0.443)	9.70 (1.911)	181 (82.5)	74 (23.3)	88 (30.8)	28.785 (97.203)
50% of Pull at Reduced Engine Speed—Two Hours 11th (3-5) Gear											
95.13 (70.94)	5373 (23.90)	6.64 (10.69)	1146	1.43	6.531 (24.724)	0.485 (0.295)	14.57 (2.869)	183 (83.9)	75 (23.9)	90 (31.9)	28.775 (97.169)
MAXIMUM POWER IN SELECTED GEARS											
157.96 (117.79)	26380 (117.34)	2.25 (3.61)	2102	14.16	1st (1-1) Gear			179 (81.7)	63 (17.2)	66 (18.9)	28.930 (97.692)
161.98 (120.79)	22702 (100.98)	2.68 (4.31)	2100	11.86	2nd (1-2) Gear			183 (83.9)	75 (23.9)	83 (28.3)	28.850 (97.422)
167.84 (125.16)	19786 (88.01)	3.18 (5.12)	2099	8.88	3rd (1-3) Gear			185 (84.7)	72 (22.2)	82 (27.8)	28.770 (97.152)
171.87 (128.16)	17012 (75.67)	3.79 (6.10)	2099	6.63	4th (1-4) Gear			185 (84.7)	71 (21.7)	80 (26.7)	28.770 (97.152)
175.28 (130.71)	14617 (65.02)	4.50 (7.24)	2100	5.17	5th (2-1) Gear			184 (84.4)	70 (21.1)	79 (26.1)	28.770 (97.152)
175.86 (131.14)	12513 (55.66)	5.27 (8.48)	2099	4.20	6th (2-2) Gear			184 (84.2)	71 (21.7)	80 (26.7)	28.760 (97.118)
179.07 (133.53)	10949 (48.70)	6.13 (9.87)	2100	3.13	7th (2-3) Gear			185 (85.0)	77 (25.0)	85 (29.4)	28.860 (97.456)
176.52 (131.63)	9261 (41.19)	7.15 (11.50)	2099	2.89	8th (2-4) Gear			186 (85.3)	72 (22.2)	83 (28.3)	28.770 (97.152)
174.23 (129.92)	7250 (32.25)	9.01 (14.50)	2098	2.19	9th (3-1) Gear			187 (85.8)	73 (22.8)	84 (28.9)	28.770 (97.152)

Department of Agricultural Engineering

Dates of Test: June 13-July 3, 1980

Manufacturer: VERSATILE MANUFACTURING CO., 1260 Clarence Avenue, Winnipeg, Manitoba Canada R3T 1T3

FUEL, OIL AND TIME: **Fuel** No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8482 **Fuel weight** 7.062 lbs/gal *(0.846 kg/l)* **Oil SAE** 30 **API service classification** SB/SE-CA/CD **To motor** 7.913 gal *(29.952 l)* **Drained from motor** 6.208 gal *(23.497 l)* **Transmission and hydraulic lubricant** Esso Hydraul 56 or equivalent **Final drive lubricant** SAE 90 **Total time engine was operated** 70.5 hours

ENGINE **Make** Cummins Dsl **Type** six cylinder vertical with turbocharger **Serial No.** 10911188 **Crankshaft** lengthwise **Rated rpm** 2100 **Constant power range** 1750 to 2100 rpm **Bore and stroke** 5.5" × 6.0" *(139.7 mm × 152.4 mm)* **Compression ratio** 14.1 to 1 **Displacement** 855 cu in *(14013 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: **Type** four wheel drive with duals **Serial No.** 835 80 034670 **Tread width** rear 72" *(1829 mm)* to 118" *(2997 mm)* front 72" *(1829 mm)* to 118" *(2997 mm)* **Wheel base** 130" *(3302 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 84.0" *(2134 mm)* Vertical distance above roadway 42.0" *(1067 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 2.6 *(4.2)* second 3.0 *(4.9)* third 3.4 *(5.6)* fourth 4.1 *(6.6)* fifth 4.7 *(7.6)* sixth 5.5 *(8.9)* seventh 6.3 *(10.2)* eighth 7.3 *(11.8)* ninth 9.2 *(14.8)* tenth 10.7 *(17.2)* eleventh 12.3 *(19.8)* twelfth 14.3 *(23.0)* reverse 3.4 *(5.4)*, 3.9 *(6.3)*, 4.5 *(7.3)*, 5.2 *(8.4)* **Clutch** dual dry disc operated by foot pedal **Brakes** dual caliper disc hydraulically operated by foot pedal or mechanically by hand lever **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 239" *(6.07 m)* left 239" *(6.07 m)* **Turning space diameter** (on concrete surface without brake) right 490" *(12.45 m)* left 490" *(12.45 m)* **Power take-off** 1009 rpm at 2100 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

LUGGING ABILITY IN 7th (2-3) GEAR

Crankshaft Speed rpm	2100	1888	1682	1466	1257	1045
Pull—lbs *(kN)*	10949 *(48.70)*	13232 *(58.86)*	15237 *(67.78)*	16590 *(73.80)*	16531 *(73.53)*	15642 *(69.58)*
Increase in Pull %	0	21	39	52	51	43
Power—Hp *(kW)*	179.07 *(133.53)*	192.30 *(143.40)*	195.44 *(145.74)*	184.26 *(137.40)*	157.36 *(117.34)*	124.29 *(92.68)*
Speed—Mph *(km/h)*	6.13 *(9.87)*	5.45 *(8.77)*	4.81 *(7.74)*	4.17 *(6.70)*	3.57 *(5.74)*	2.98 *(4.80)*
Slip %	3.13	4.50	5.25	5.83	5.98	5.54

TRACTOR SOUND LEVEL WITH CAB	2100 RPM dB(A)	1900 RPM dB(A)	1750 RPM dB(A)
Maximum Available Power—Two Hours	81.5	80.5	81.0
75% of Pull at Maximum Power—Ten Hours	83.0	–	–
50% of Pull at Maximum Power—Two Hours	83.0	–	–
50% of Pull at Reduced Engine Speed—Two Hours	78.0	–	–
Bystander in 12th (3-4) gear	89.0	–	–

DRAWBAR PERFORMANCE AT 1900 RPM

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 7th (2-3) Gear											
186.11 *(138.78)*	12714 *(56.55)*	5.49 *(8.83)*	1898	4.27	13.063 *(49.448)*	0.496 *(0.302)*	14.25 *(2.807)*	186 *(85.5)*	64 *(17.5)*	75 *(23.6)*	29.015 *(97.979)*
MAXIMUM POWER IN SELECTED GEAR											
191.15 *(142.54)*	13083 *(58.20)*	5.48 *(8.82)*	1899	4.50	7th (2-3) Gear			184 *(84.2)*	69 *(20.6)*	76 *(24.4)*	28.750 *(97.084)*

DRAWBAR PERFORMANCE AT 1750 RPM

Maximum Available Power—Two Hours 7th (2-3) Gear											
191.23 *(142.60)*	14299 *(63.60)*	5.02 *(8.07)*	1749	5.13	12.939 *(48.979)*	0.478 *(0.291)*	14.78 *(2.911)*	185 *(85.0)*	71 *(21.4)*	78 *(25.6)*	28.915 *(97.642)*
MAXIMUM POWER IN SELECTED GEARS											
174.69 *(130.27)*	25638 *(114.04)*	2.56 *(4.11)*	1807	14.95	3rd (1-3) Gear			181 *(82.5)*	63 *(17.2)*	66 *(18.9)*	28.930 *(97.692)*
187.20 *(139.59)*	22957 *(102.12)*	3.06 *(4.92)*	1749	9.56	4th (1-4) Gear			181 *(82.8)*	63 *(17.2)*	66 *(18.9)*	28.930 *(97.692)*
189.84 *(141.56)*	19619 *(87.27)*	3.63 *(5.84)*	1750	8.05	5th (2-1) Gear			189 *(86.9)*	70 *(21.1)*	79 *(26.1)*	28.770 *(97.152)*
194.32 *(144.90)*	16958 *(75.47)*	4.30 *(6.92)*	1749	6.42	6th (2-2) Gear			188 *(86.4)*	71 *(21.7)*	80 *(26.7)*	28.760 *(97.118)*
(195.90) *(146.08)*	14669 *(65.25)*	5.01 *(8.06)*	1749	5.17	7th (2-3) Gear			186 *(85.3)*	70 *(21.1)*	78 *(25.6)*	28.750 *(97.084)*
198.10 *(147.72)*	12647 *(56.26)*	5.87 *(9.45)*	1750	4.35	8th (2-4) Gear			188 *(86.4)*	72 *(22.2)*	83 *(28.3)*	28.770 *(97.152)*
198.32 *(147.89)*	10013 *(44.54)*	7.43 *(11.95)*	1746	3.13	9th (3-1) Gear			189 *(86.9)*	73 *(22.8)*	84 *(28.9)*	28.770 *(97.152)*
197.02 *(146.91)*	8499 *(37.80)*	8.69 *(13.99)*	1749	2.58	10th (3-2) Gear			188 *(86.4)*	73 *(22.8)*	85 *(29.4)*	28.770 *(97.152)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 18.4-38; 8; inner 16 *(110)* outer 14 *(95)*	Four 18.4-38; 8; inner 16 *(110)* outer 14 *(95)*
Ballast	—Liquid (each inner)	655 lb *(297 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Four 18.4-38; 8; inner 16 *(110)* outer 14 *(95)*	Four 18.4-38; 8; inner 16 *(110)* outer 14 *(95)*
Ballast	—Liquid (each inner)	1205 lb *(547 kg)*	None
	—Cast Iron (each)	None	None
Height of Drawbar		17.5 in *(445 mm)*	17.5 in *(445 mm)*
Static Weight with Operator—Rear		10930 lb *(4958 kg)*	9620 lb *(4364 kg)*
Front		17070 lb *(7743 kg)*	14660 lb *(6649 kg)*
Total		28000 lb *(12701 kg)*	24280 lb *(11013 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump return was 147°F *(63.8°C)*. Nine gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

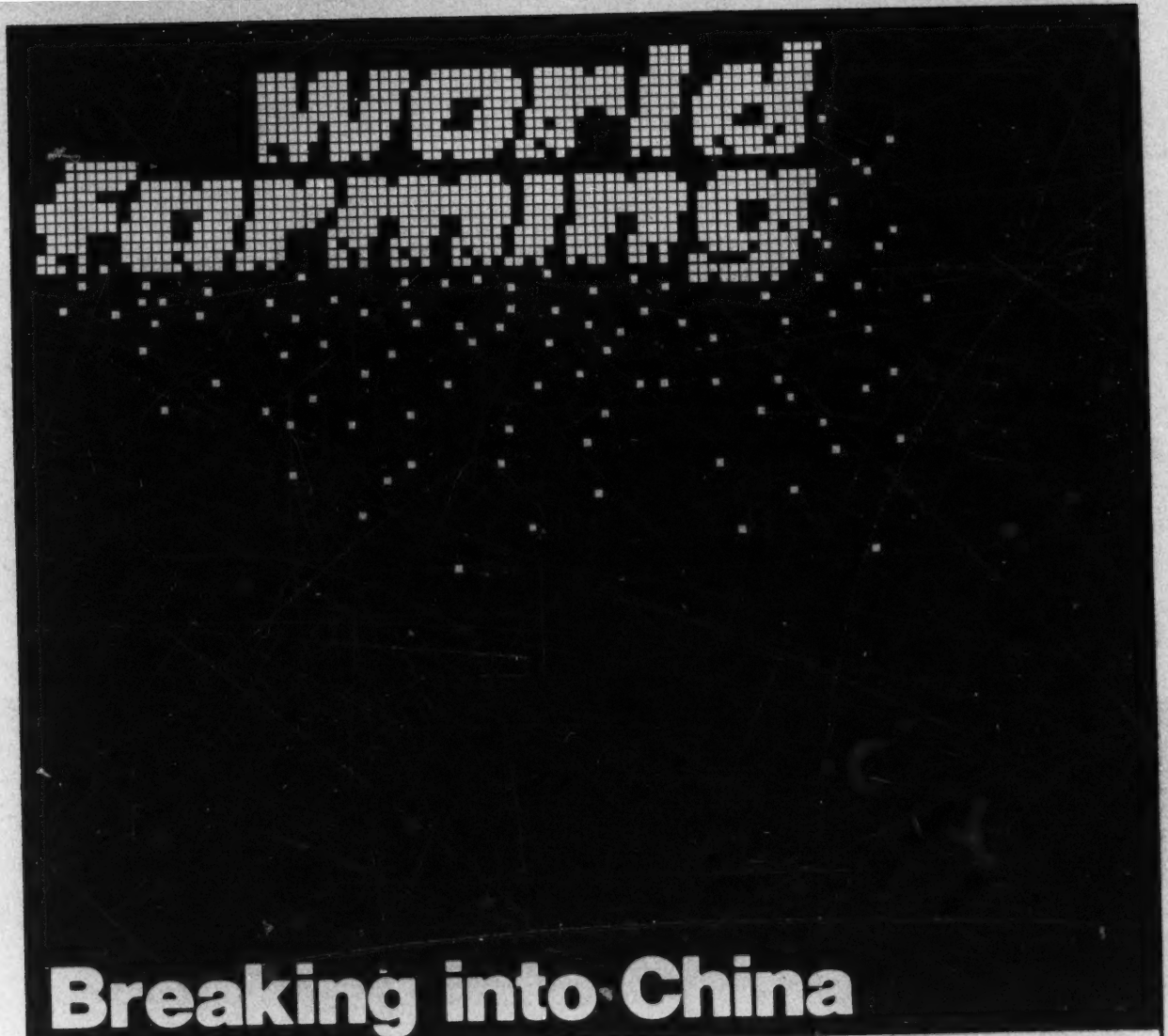
We, the undersigned, certify that this is a true and correct report of official Tractor Test **1356**.

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

Versatile 835 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Roy G. Arnold, Director



Breaking into China

In July 1981, WORLD FARMING MAGAZINE will break into China with its first Chinese language edition.

OUR INVITATION

WORLD FARMING is proud to be the first Western magazine invited by a Chinese Agricultural Society to print a special edition specifically for professionals in the People's Republic of China.

The Chinese Academy of Agricultural Sciences, a division of the Ministry of Agriculture, has personally invited WORLD FARMING into China. They've offered to circulate this issue to 8,000 of their top agricultural managers and professionals throughout China. And they've offered to translate the special issue—both advertising and articles—so that experts across China will be able to understand every page.

SPECIAL BENEFITS

Circulation will be the best available—and will be BPA audited.

And the Chinese have told us pass-along readership will be high—they estimate at least 10 per copy. But the most exciting part of WORLD FARMING, Chinese language edition will be the inquiry system.

SPECIAL INQUIRIES

Each interested decision-maker will have the opportunity to ask for more information about your advertised product or company. The request will be sent to Beijing for translation, to WORLD FARMING for processing, and to you for follow-up. What's so unique about that, you ask? WORLD FARMING's 2-label system.

You'll get the translated inquiry in English along with the usual set of English labels. But you'll also get a set of matching Chinese labels.

The English label will get information to China. The Chinese label will get information through China.

Clever? We think so—but we want to be sure that our Chinese language edition will be the best possible. For the Chinese—and for our advertisers.

Speaking of advertisers, shouldn't your company be breaking into China?

We'd be happy to give you more reasons to be a part of WORLD FARMING, Chinese Language Edition. Call collect or write..

world farming

P.O. Box 12901A Overland Park, Kansas 66212 913-888-4664

Nebraska Tractor Tests Summarized (Tests from 1971 through 1980)

MAKE AND MODEL OF TRACTOR	Test No.	Fuel Used	Weight With Ballast	Lbs. Ballast Carried	ENGINE No. of Cylinders	Bore and Stroke	Displacement Cu. in.	Rated RPM Dwbr.	Max. PTO HP @ Rated Engine RPM	Std. PTO RPM	Max. PTO HP @ Std. PTO RPM	Max. Drawbar HP	MPH @ Max. Dwbr. HP	Max. Lbs. Pull	Max. PTO HP @ Std. PTO RPM	—FUEL CONSUMPTION (HP Hours Per Gallon) @:— PTO Average @ Varying Power	—Varying Drawbar Power— Max. Available Power	75% of Pull Max. Power	50% of Pull @ Max. Power
Allis-Chalmers																			
175	1156	Gas.	8400	2010	4	4.000x4.500	226	1800	60.88	540	56.02	53.17	5.50	6875	11.78	9.44	10.22	9.64	8.20
Two-Ten	1065	Die.	18045	5620	6	4.250x5.000	426	2200	122.74	1000	122.40	106.35	4.45	14023	15.21	11.79	13.14	11.85	9.70
5020	1270	Die.	3358	1298	2	3.62x3.74	77	2500	21.79	540	20.78	18.05	5.74	2346	13.99	11.77	11.07	10.51	8.62
5030	1271	Die.	3876	1346	2	3.82x3.94	90.1	2500	26.42	540	25.61	23.92	4.26	3389	13.82	11.28	11.64	11.48	9.68
5040	1230	Die.	6240	2180	3	3.740x4.330	143	2400	40.05	540	36.69	35.86	5.00	4837	15.47	11.80	12.58	12.74	10.44
5050 Diesel	1240	Die.	7960	3550	3	4.055x4.330	168	2700	51.46	540	47.16	45.22	5.68	6075	16.10	12.42	12.58	13.01	11.24
7000PS Diesel	1195	Die.	12580	3030	6	3.875x4.250	301	2200	106.44	1000	105.85	92.64	6.08	9907	15.70	12.21	13.21	12.27	10.16
7010PD Die. 20 Speed	1345	Die.	12790	1530	6	3.875x4.25	301	2300	106.53	1000	107.52	91.44	6.05	9426	15.48	11.57	12.59	11.48	9.68
7010PS Die. 12 Speed	1346	Die.	12740	1360	6	3.875x4.25	301	2300	106.72	1000	106.33	91.61	6.11	9516	15.43	11.74	12.43	11.35	9.58
7020 Power Shift	1259	Die.	15610	3840	6	3.875x4.250	301	2300	123.79	1000	123.50	105.36	6.59	12001	16.01	12.45	13.10	12.25	10.34
7020 Power Director	1260	Die.	15655	4085	6	3.875x4.250	301	2300	123.85	1000	125.51	107.36	6.63	11964	16.08	12.12	13.09	12.08	10.13
7030 Diesel	1119	Die.	16560	4130	6	4.250x5.000	426	2300	130.98	1000	131.14	113.28	4.94	12610	15.45	11.76	12.92	11.90	9.91
7040 Diesel	1166	Die.	17380	5585	6	4.250x5.000	426	2300	136.49	1000	136.26	116.21	6.58	13619	15.35	11.78	12.94	11.86	9.80
7040PS Diesel	1196	Die.	17355	4977	6	4.250x5.000	426	2300	136.30	1000	136.15	117.75	4.61	13547	15.51	11.95	13.05	12.29	10.39
7045 Power Director	1261	Die.	18980	4645	6	4.250x5.000	426	2300	146.18	1000	146.46	127.84	7.04	15430	14.62	11.26	12.16	11.40	9.72
7045 Powershift Diesel	1308	Die.	18990	4390	6	4.25x5.00	426	2300	146.88	1000	146.67	127.17	4.92	15449	14.92	11.32	12.58	11.71	9.62
7050 Diesel	1120	Die.	19530	5005	6	4.250x5.000	426	2300	156.49	1000	156.63	135.11	5.47	16206	16.04	12.69	13.47	12.67	10.53
7060 Diesel	1167	Die.	20490	6500	6	4.250x5.000	426	2300	161.51	1000	160.44	140.59	6.94	17370	15.99	12.71	13.63	12.75	10.55
7060PS Diesel	1197	Die.	20560	5915	6	4.250x5.000	426	2300	161.42	1000	161.65	144.13	4192	17851	16.08	12.76	13.80	12.98	10.79
7080 Diesel	1168	Die.	21720	7115	6	4.250x5.000	426	2550	181.51	1000	181.51	153.78	4.58	18478	15.71	12.24	13.23	12.11	10.02
7580 4WD	1229	Die.	25000	1490	6	4.250x5.000	426	2550	186.35	1000	186.35	160.79	6.91	23310	14.81	11.47	12.22	11.39	9.40
8550 Diesel	1262	Die.	29360	2320	6	5.250x5.625	731	2500	253.88	1000	253.88	223.39	7.24	26220	14.57	10.94	12.47	11.45	9.35
Belarus																			
MTZ 80 Diesel	1139	Die.	11575	3735	4	4.331x4.921	288.7	2200	74.79	1000	73.88	65.64	5.08	8141	15.30	13.07	13.12	13.12	11.32
250 Diesel	1183	Die.	5490	939	2	4.134x4.724	127	1800	24.95	540	25.02	21.81	4.54	2280	15.56	13.23	13.19	13.20	11.80
T25A Diesel	1200	Die.	5490	939	2	4.134x4.724	127	1800	28.70	540	28.15	24.46	4.51	2570	13.95	13.46	12.21	13.48	11.94
1500 Diesel 12 Speed	1333	Die.	19885	1120	6	5.118x4.528	558	2100	168.76	1000	169.63	151.96	5.31	19311	16.48	13.69	14.53	13.98	12.25
7100 Diesel 16 Speed	1334	Die.	32460	None	12	5.118x5.512	1360	1900	269.62	1000	269.62	259.46	4.78	30845	15.85	13.26	14.82	14.35	12.56
David Brown																			
885 Gasoline	1143	Gas.	6550	2530	3	3.939x4.000	146.1	2200	39.26	1000†	37.26	32.92	4.61	5308	10.96	8.19	7.55	7.00	7.21
885 Diesel	1137	Die.	6480	2125	3	3.939x4.500	164.4	2200	43.20	1000†	40.87	37.16	4.57	5135	16.61	14.03	13.85	13.73	12.67
990 Diesel	1144	Die.	9350	4690	4	3.939x4.000	194.9	2200	53.77	1000†	50.48	46.34	5.54	7335	15.53	13.23	13.37	12.91	11.14
995 Diesel	1136	Die.	9475	4325	4	3.939x4.500	219	2200	58.77	1000†	55.33	50.42	5.44	7317	16.60	13.94	13.78	13.60	12.40
1210 Diesel	1142	Die.	10440	4640	4	3.939x4.500	219	2300	65.98	1000†	59.50	57.23	6.16	8097	16.40	14.43	13.61	14.36	12.93
1212 Diesel	1138	Die.	10435	4030	4	3.939x4.500	219	2300	65.38	1000†	58.25	54.10	6.92	8137	15.35	13.84	12.56	13.27	11.82
Case																			
770 Manual	1088	Die.	12300	2230	4	4.125x5.000	267	2000	63.90	540	62.85	57.12	5.07	8853	15.16	12.43	13.20	12.67	10.64
770 Power Shift	1089	Die.	12375	2215	4	4.125x5.000	267	2000	64.56	540	61.93	57.57	4.28	8927	14.72	12.22	12.62	12.45	10.53
870 Manual	1077	Die.	13520	3450	4	4.625x5.000	336	2000	78.08	1000	76.63	70.19	5.03	9733	15.46	13.01	13.35	13.44	11.89
870 Power Shift	1076	Die.	13550	3320	4	4.625x5.000	336	2000	77.92	1000	77.11	67.47	4.23	10075	14.42	12.15	12.13	12.41	11.10
870 Manual Diesel	1149	Die.	13510	3435	4	4.625x5.000	336	2100	80.20	1000	77.93	71.09	5.23	10047	14.52	12.13	12.42	12.53	10.88
870 Power Shift	1150	Die.	13760	3664	4	4.625x5.000	336	2100	80.49	1000	76.52	71.04	4.39	10030	13.64	11.60	11.49	12.04	10.88
970 Manual	1078	Die.	14470	3390	6	4.125x5.000	401	2000	93.87	1000	92.11	81.27	4.91	10644	15.51	12.75	13.53	13.26	11.50
970 Power Shift	1068	Die.	14510	3320	6	4.125x5.000	401	2000	93.41	1000	93.47	81.90	6.13	11009	15.11	12.31	12.88	12.37	12.12
1070 Manual	1067	Die.	17520	6110	6	4.375x5.000	451	2100	107.36	1000	103.91	93.70	4.50	13161	15.75	12.42	13.05	12.62	11.34
1070 Power Shift	1066	Die.	17675	6165	6	4.375x5.000	451	2100	108.10	1000	99.92	95.37	4.44	13780	15.44	12.43	12.62	12.68	11.04
1270	1103	Die.	17625	4185	6	4.375x5.000	451	2100	126.70	1000	126.60	109.77	6.79	12690	14.52	11.05	12.13	11.55	9.81
1270	1160	Die.	18910	3440	6	4.375x5.000	451	2100	135.39	1000	135.41	121.83	6.46	15648	14.23	11.14	12.16	11.49	9.88
1370	1102	Die.	20960	5670	6	4.625x5.000	504	2100	142.51	1000	143.64	123.01	4.78	16609	15.37	1145	12.73	11.82	10.16
1370 Diesel	1148	Die.	20290	4945	6	4.625x5.000	504	2200	155.56	1000	156.32	134.25	5.00	16480	15.01	10.95	12.04	10.91	9.109

1410 Manual	1209	Die.	10910	3160	4	3.939x4.500	219	2300	80.88	540	79.35	69.25	5.32	7846	17.47	14.69	14.20	14.38	12.45
1410 Power Shift	1210	Die.	10990	3150	4	3.939x4.500	219	2300	80.61	540	76.21	67.98	7.90	7816	16.86	13.76	13.34	13.21	11.45
1570	1218	Die.	20350	4060	6	4.625x5.000	504	2100	180.41	1000	180.41	152.96	5.02	17115	15.09	12.47	12.72	12.46	10.88
2090 Manual Diesel	1304	Die.	15030	3120	6	4.625x5.000	504	2100	108.74	1000	108.74	94.99	4.60	11655	15.40	12.23	13.41	12.69	10.73
2090 Power Shift	1295	Die.	15190	3160	6	4.625x5.00	504	2100	108.29	1000	108.29	93.60	4.81	11211	14.94	11.77	12.49	11.96	10.14
2290 Manual Diesel	1296	Die.	15400	2630	6	4.625x5.000	504	2100	128.80	1000	128.80	109.36	5.32	12635	14.52	11.66	12.46	11.73	10.07
2290 Powershift Diesel	1297	Die.	15840	2140	6	4.625x5.000	504	2100	129.08	1000	129.08	111.68	6.25	12749	13.76	11.53	12.65	11.37	9.77
2390 Powershift Diesel	1302	Die.	18710	3120	6	4.625x5.000	504	2100	160.72	1000	160.72	146.01	6.59	16020	15.23	12.41	13.20	12.66	10.99
2470	1114	Die.	20485	None	6	4.625x5.000	504	2200	174.20	1000	174.20	154.24	5.67	18050	15.22	12.33	13.30	12.55	10.86
2590 Powershift Diesel	1303	Die.	20500	4760	6	4.625x5.000	504	2100	180.38	1000	180.38	159.01	6.57	17865	15.53	12.97	13.42	13.03	11.67
2670 Diesel	1165	Die.	25260	4450	6	4.625x5.000	504	2200	219.44	1000	219.44	194.60	5.28	23618	15.29	12.59	13.42	12.60	10.88
2870 Diesel	1241	Die.	28150	3050	6	5.000x5.710	673	2200	252.10	1000	252.10	219.61	5.72	26386	15.45	12.01	12.98	12.37	10.40
M-8 4/94	1211	Die.	13110	4620	6	3.819x5.039	346	2550	73.33	1000†	70.17	66.33	5.33	10558	15.13	10.68	12.55	11.65	9.49
4490 Diesel	1328	Die.	22450	1610	6	4.625x5.000	504	2200	175.20	1000	175.20	152.80	7.14	21400	15.27	12.36	13.30	12.52	10.87
4690 Diesel	1329	Die.	25230	2920	6	4.625x5.000	504	2200	219.62	1000	219.62	195.60	5.97	24564	15.26	12.76	13.39	12.84	11.21
4890 Diesel	1330	Die.	28460	2710	6	5.00x5.71	673	2200	253.41	1000	253.41	224.81	5.96	27627	16.32	13.02	14.19	13.27	11.36
John Deere																			
830 Diesel	1146	Die.	5714	1338	3	3.860x4.330	152	2400	35.30	540	32.62	28.46	5.19	4252	14.74	11.37	11.84	11.03	9.09
850	1280	Die.	3528	992	3	3.15x3.35	78	2600	22.27	540	20.66	18.92	4.90	2699	14.26	11.51	11.23	11.22	10.21
950	1281	Die.	3615	803	3	3.54x3.54	105	2400	27.36	540	28.05	23.46	4.98	3056	14.68	12.36	12.42	12.23	10.63
1050 Diesel	1327	Die.	4140	730	3	3.54x3.54	105	2400	33.41	540	33.42	28.15	5.27	3466	15.46	12.36	12.34	11.99	10.13
1530 Diesel	1147	Die.	6863	1909	3	4.020x4.330	164	2500	45.38	540	41.36	38.86	5.58	5139	14.28	11.20	12.04	11.47	9.78
2030	1085	Die.	7430	2060	4	4.020x4.330	219	2500	60.65	540	55.23	52.33	5.92	6472	16.26	12.16	12.73	11.82	10.53
2030	1084	Gas.	7430	2200	4	4.020x4.330	219	2500	60.34	540	55.38	51.33	5.93	6340	11.59	7.69	8.65	7.66	5.88
2040 Diesel	1191	Die.	6420	1620	3	4.020x4.330	164	2500	40.86	540	37.62	34.15	5.64	4634	15.50	11.18	11.87	11.15	9.51
2040 Diesel 8 Speed	1350	Die.	6500	1465	3	4.19x4.33	179	2500	41.25	540	40.53	33.31	5.63	4873	15.62	11.73	12.02	11.35	9.03
2240 Diesel	1192	Die.	7340	2390	3	4.190x4.330	179	2500	50.37	540	46.78	41.28	5.54	5433	15.20	11.08	11.57	11.18	9.51
2630	1157	Die.	8430	2630	4	4.190x5.000	276	2500	70.37	540	69.02	58.15	5.38	6470	16.01	10.89	12.10	10.98	8.95
2840 Diesel	1249	Die.	10500	1695	6	4.020x4.330	329	2500	80.65	1000	76.27	67.47	6.21	8386	16.02	11.52	12.36	11.57	9.59
2940 Diesel 16 Speed	1351	Die.	10650	1215	6	4.19x4.33	359	2500	81.17	1000	81.46	67.98	4.64	7601	15.51	11.73	12.81	11.91	9.91
4030 Quad-Range	1111	Die.	10150	970	6	4.000x4.330	329	2500	80.33	1000	77.72	68.76	6.10	7512	15.40	10.69	11.71	10.99	8.92
4040 Diesel	1267	Die.	12055	1165	6	4.250x4.750	404	2200	90.80	1000	90.80	76.81	7.02	8936	13.49	10.59	11.24	10.96	9.21
4240 Diesel	1266	Die.	14090	1695	6	4.5625x4.75	466	2200	110.94	1000	110.94	95.18	5.42	11492	14.33	11.05	12.05	11.35	9.52
4230 Quad-Range	1112	Die.	14150	3250	6	4.250x4.750	404	2200	100.32	1000	100.32	86.36	6.65	11116	14.10	11.61	12.02	11.92	10.10
4430 Quad-Range	1110	Die.	15060	3710	6	4.250x4.750	404	2200	125.88	1000	125.88	108.46	6.58	12032	15.56	12.13	12.94	11.96	10.17
4440 Diesel	1265	Die.	15540	2270	6	4.5625x4.75	466	2200	130.58	1000	130.58	112.56	5.02	13392	15.21	11.73	12.69	11.83	9.90
4620 Power Shift	1064	Die.	18585	3655	6	4.250x4.750	404	2200	135.62	1000	130.79	115.58	4.73	14471	15.70	11.35	12.23	11.27	9.16
4620 Syncro-Range	1073	Die.	18640	3840	6	4.250x4.750	404	2200	135.76	1000	130.27	117.38	5.08	13916	15.57	11.51	12.66	11.86	9.91
4630 Power Shift	1113	Die.	16250	None	6	4.250x4.750	404	2200	150.66	1000	150.66	134.56	10.26	14478	15.68	12.43	13.34	12.88	10.59
4640 Diesel	1264	Die.	18120	None	6	4.5625x4.75	466	2200	156.30	1000	156.30	137.40	6.45	15362	15.61	12.29	13.30	12.15	10.32
4840 Diesel	1263	Die.	20370	2240	6	4.5625x4.75	466	2200	180.63	1000	181.63	157.09	4.76	17307	15.85	12.47	13.35	12.54	10.76
6030	1100	Die.	18180	None	6	4.750x5.000	531	2100	175.99	1000	175.99	155.42	6.65	15303	15.82	12.70	13.52	12.72	11.04
7020	1063	Die.	19570	1075	6	4.250x4.750	404	2200	146.17	1000	146.17	131.50	5.34	18726	14.28	11.41	12.82	11.81	9.51
7520	2101	Die.	22320	None	6	4.750x5.000	531	2100	175.82	1000	175.82	165.21	5.69	22517	15.18	12.37	13.76	12.82	10.97
8430 Diesel	1179	Die.	23100	290	6	4.563x4.750	466	2100	178.16	993	178.16	160.39	5.56	22503	15.12	11.98	13.44	12.64	10.42
8630 Diesel	1180	Die.	26480	1950	6	5.125x5.000	619	2100	225.59	993	225.59	202.31	4.58	26443	15.34	12.27	13.67	12.80	10.78
8440 Diesel	1323	Die.	26590	None	6	4.563x4.75	466	2100	179.83	1000	179.83	163.26	4.97	25383	15.86	12.55	14.29	13.06	11.25
8640 Diesel	1324	Die.	28270	None	6	5.125x5.00	619	2100	228.75	1000	228.75	208.38	4.63	27782	15.61	12.40	14.06	13.14	11.16
Deutz																			
4006	1075	Die.	7005	2520	3	3.940x4.720	172.5	2150	36.95	540	32.15	32.30	5.00	5043	17.76	13.93	14.84	14.00	12.78
D4506	1131	Die.	7390	2880	3	3.940x4.720	172.5	2300	43.15	540	42.17	37.07	4.68	5472	18.02	14.12	14.49	14.05	12.46
5506	1104	Die.	9780	4490	4	3.940x4.720	230	2300	56.08	540	52.88	48.81	6.33	6996	17.77	13.84	14.37	13.69	12.06
6006	1091	Die.	11250	4920	4	3.940x4.720	230	2300	65.30	1000	63.93	58.15	7.02	8623	15.26	13.53	13.02	13.64	11.75
D6206	1219	Die.	8780	3410	4	3.937x4.724	230	2050	60.23	540	57.00	52.41	6.04	6944	17.58	15.43	15.10	15.34	14.05
D6806	1220	Die.	11000	4605	4	3.937x4.724	230	2300	68.18	540	62.52	61.87	7.15	9095	16.39	14.73	14.63	15.05	13.52
8006	1074	Die.	11060	4210	6	3.940x4.720	345	2100	85.51	1000	81.18	74.46	6.73	8898	16.87	14.57	13.91	14.17	12.76
10006	1105	Die.	14440	6060	6	3.940x4.720	345	2400	105.04	1000	101.19	90.92	5.80	9979	14.39	13.46	12.14	13.52	11.70
13006	1092	Die.	15980	6375	6	3.940x4.720	345	2400	125.71	1000	133.27	114.85	8.47	10677	17.39	14.10	14.36	13.87	12.07
D13006	1130	Die.	16125	4075	6	3.940x4.720	345	2400	125.77	1000	126.19	110.24	5.74	13509	17.71	14.00	14.97	13.83	11.95
DX-90 Diesel	1305	Die.	13150	3210	5	3.94x4.72	287	2300	84.47	1000	80.82	74.19	6.53	8766	16.45	14.15	13.81	14.07	12.39
DX-110 Diesel	1306	Die.	14940	2360	6	3.94x4.72	345	2300	100.29	1000	93.61	90.82	7.00	11773	15.10	13.71	13.52	14.03	12.60
DX-160 Diesel	1307	Die.	18710	3870	6	4.02x4.92	374	2200	145.41	1000	140.99	124.24	5.63	15172	17.82	14.47	14.56	13.95	11.93

Nebraska Tractor Tests Summarized (Tests from 1971 through 1980)

MAKE AND MODEL OF TRACTOR	Test No.	Fuel Used	Weight With Ballast	Lbs. Ballast Carried	No. of Cylinders	ENGINE Bore and Stroke	Displacement Cu. in.	Rated RPM Dwbr.	Max. PTO HP @ Rated Engine RPM	Std. PTO RPM	Max. PTO HP @ Std. PTO RPM	Max. Drawbar HP	MPH @ Max. Dwbr. HP	Max. Lbs. Pull	Max. PTO HP @ Std. PTO RPM	—FUEL CONSUMPTION (HP Hours Per Gallon) @:— PTO Average @ Varying Power	—Varying Drawbar Power— Max. Available Power	75% of Pull Max. Power	50% of Pull @ Max. Power
Fiat																			
420	1293	Die.	6035	2115	3	3.74x4.33	143	2200	41.34	540	37.45	37.71	5.65	5299	14.81	12.93	13.30	13.92	12.35
580	1292	Die.	9210	2580	3	4.055x4.33	168	2700	51.61	540	48.42	44.20	3.38	8899	14.93	12.59	12.14	12.70	10.50
780	1294	Die.	10230	2830	4	4.055x4.33	224	2500	70.36	540	66.30	64.43	4.06	7776	15.41	13.62	13.93	14.17	12.50
Ford																			
1600 Diesel	1228	Die.	3840	1150	2	3.543x3.937	77.6	2500	23.02	540	19.78	18.53	5.76	2634	14.14	11.82	11.26	11.45	9.72
1700 Diesel	1325	Die.	3725	1110	2	3.54x3.94	77.6	2500	23.26	540	23.02	20.21	5.54	2801	13.02	11.21	10.89	11.48	10.41
1900 Diesel	1326	Die.	4160	1225	3	3.35x3.31	87.2	2800	26.88	540	25.68	23.49	6.20	2964	12.58	10.38	10.41	10.89	9.32
2600 6-Speed	1204	Die.	5990	1550	3	4.200x3.800	158	2000	32.38	540	30.51	27.93	5.57	4591	14.88	11.51	12.27	11.74	10.22
2600 6-Speed	1206	Gas.	6000	1645	3	4.200x3.800	158	2000	32.78	540	31.03	28.25	5.57	4198	11.14	7.89	8.83	8.17	6.73
2600 8-Speed	1222	Die.	6000	460	3	4.200x3.800	158	2000	32.47	540	30.76	28.18	5.56	4452	14.62	11.18	11.94	11.22	9.18
2600 8-Speed	1207	Gas.	6000	1710	3	4.200x3.800	158	2000	34.18	540	32.07	30.20	5.49	4455	11.54	8.38	9.45	8.64	7.15
3600 6-Speed	1203	Die.	6860	2445	3	4.200x4.200	175	2000	40.49	540	37.64	34.47	5.96	5114	15.32	12.12	12.84	12.34	9.97
3600 6-Speed	1208	Gas.	6900	2685	3	4.200x4.200	175	2000	40.17	540	37.91	35.53	5.91	5158	11.23	8.07	9.29	8.77	7.05
3600 8-Speed	1221	Die.	6890	1300	3	4.200x4.200	175	2000	40.55	540	38.31	34.10	5.96	5277	15.33	12.40	12.93	12.51	10.36
3600 8-Speed	1226	Gas.	6900	1500	3	4.200x4.200	175	2000	40.62	540	38.29	35.90	5.93	5123	11.42	8.16	9.02	8.57	6.88
4100 8-Speed	1202	Die.	7500	2590	3	4.200x4.400	183	2000	45.46	540	41.13	41.14	4.63	5557	15.59	11.57	12.47	11.96	10.36
4600 8-Speed	1223	Die.	8220	2340	3	4.400x4.400	201	2200	52.44	540	46.31	45.57	5.24	6342	14.59	11.49	11.82	11.85	10.77
5600 8-Speed	1201	Die.	9690	3785	4	4.200x4.200	233	2100	60.46	540	56.85	52.22	5.49	7105	15.77	12.83	12.87	12.88	11.02
5600 16-Speed	1227	Die.	9690	2380	4	4.200x4.200	233	2100	58.46	540	56.00	49.79	5.36	7140	15.06	11.94	12.07	11.94	10.42
6600 8-Speed	1217	Die.	9660	3780	4	4.400x4.200	256	2100	70.56	1000	70.07	61.36	6.91	7131	15.43	12.86	12.28	12.71	11.35
6600 16-Speed	1224	Die.	9700	2680	4	4.400x4.200	256	2100	68.10	1000	68.05	58.74	5.22	7267	14.97	12.64	12.05	12.77	11.05
6700 16-Speed	1244	Die.	9690	1180	4	4.400x4.200	255	2100	68.94	1000	68.62	58.06	7.55	6787	13.77	12.23	11.24	12.38	11.16
7000	1093	Die.	10795	4580	4	4.400x4.200	256	2100	83.49	540	78.81	71.42	5.71	8138	16.64	13.53	13.21	12.86	11.51
7600 16-Speed	1225	Die.	10760	3320	4	4.400x4.200	256	2100	84.79	1000	85.16	67.95	5.61	7779	15.95	12.35	12.44	11.77	9.92
7700 16-Speed	1242	Die.	10800	2400	4	4.400x4.200	255	2100	84.38	1000	84.29	71.57	7.28	7688	15.24	11.65	11.92	11.21	9.71
8700 16-Speed	1245	Die.	14760	2490	6	4.400x4.400	401	2300	110.58	1000	99.56	100.12	6.94	11581	15.02	11.91	12.37	12.28	10.93
8600 Dual Power	1121	Die.	14790	3360	6	4.400x4.400	401	2300	110.69	1000	99.32	93.62	4.88	11363	15.69	12.84	12.71	12.74	11.19
9600 Dual Power	1122	Die.	18000	6140	6	4.400x4.400	401	2200	135.46	1000	128.46	116.40	6.65	12203	16.88	12.99	13.31	12.64	11.06
9700 16-Speed	1243	Die.	17480	4620	6	4.40x4.400	401	2200	135.64	1000	129.25	118.08	6.55	15010	15.95	11.77	12.63	11.97	10.34
TW-10 Diesel	1301	Die.	15190	2325	6	4.4x4.4	401	2300	110.24	1000	101.09	97.24	8.25	12006	14.86	11.50	12.17	11.91	10.20
TW-20 Diesel	1300	Die.	17180	3495	6	4.4x4.4	401	2200	135.60	1000	131.43	121.47	7.85	14155	16.22	11.78	13.08	12.04	10.09
TW-30 Diesel	1299	Die.	19830	5205	6	4.4x4.4	401	2200	163.28	1000	157.04	144.17	8.32	16553	16.76	12.49	13.67	12.58	10.79
FW-20	1291	Die.	31000	1385	8	4.625x4.125	555	2850	....	....	....	156.85	5.45	27155	....	....	12.12	11.69	10.15
FW30	1288	Die.	31720	410	8	5.500x4.750	903	2600	(1)	....	....	212.02	6.64	27803	....	....	13.71	12.24	10.08
				FW 30 without PTO								220.38	5.85	28302	....	....	14.16	12.73	10.96
FW 40	1290	Die.	32950	2320	8	5.500x4.750	903	2600	....	....	....	238.78	6.60	28245	....	....	13.83	12.84	10.73
FW 60	1289	Die.	33970	2870	8	5.500x4.750	903	2600	....	....	....	285.57	7.45	29304	....	....	14.90	13.38	11.27

(1) Equipped with controlled, hydrostatic pto with 105 output horsepower at 1000 rpm.

Hesston Fiat																			
680DT & 680 8 Speed	1352	Die.	10000	2660	4	3.397x4.331	211	2500	62.47	1000	61.20	53.65	5.44	6252	17.19	14.19	14.80	14.20	12.45
880DT-5 & 880-5 12 Speed	1353	Die.	11560	2810	5	4.055x4.331	280	2500	81.32	1000	80.95	70.73	7.63	7554	16.27	13.23	13.50	13.44	11.65
980DT & 980 16 Speed	1354	Die.	12645	3795	6	3.397x4.33	316	2400	91.12	996	91.17	77.42	5.00	8351	16.90	13.92	12.45	13.59	12.25
International Harvester																			
Int'l Hydro 100	1158	Die.	12765	635	6	4.300x5.000	436	2400	104.17	1000	101.30	82.13	6.42	9801	14.83	10.50	10.35	10.19	8.95
Hydro 186 Diesel	1257	Die.	13430	None	6	4.300x5.000	436	2400	105.02	1000	100.31	82.77	6.56	11312	13.68	10.06	9.83	9.84	8.46
IH 284	1277	Gas.	3596	1166	4	2.756x2.992	71.3	2600	25.75	1000	24.33	20.64	4.02	2561	11.62	9.54	9.77	8.97	7.52
Int'l 354	1115	Gas.	5925	1890	4	3.875x4.000	143.1	1875	32.58	540	32.22	28.37	5.01	4674	10.36	7.99	9.03	8.55	7.23

Int'l. 454	1097	Die.	7470	2750	3	3.875x5.060	179	2200	40.47	1000	40.47	35.83	4.10	5583	14.68	11.48	12.87	11.85	10.07
Int'l. 454	1096	Gas.	7120	2720	4	3.375x4.390	157	2200	40.86	1000	40.86	35.24	4.13	5329	10.94	8.03	9.22	8.40	7.12
Int'l. 464 Gas	1126	Gas.	7355	2460	4	3.562x4.390	175	2400	45.74	540	43.64	42.20	4.51	5465	10.80	8.00	9.65	8.86	7.70
Int'l. 464 Diesel	1127	Die.	7570	2440	3	3.875x5.060	179	2400	44.42	540	41.73	39.97	4.53	5488	14.41	11.49	12.25	12.57	10.67
484 Utility Dsl.	1312	Die.	7710	2710	3	3.875x5.06	179	2200	42.42	540	41.79	38.06	4.78	5500	14.81	11.85	12.75	12.39	10.63
Int'l. 574	1099	Die.	8675	3525	4	3.875x5.060	238.6	2200	52.55	1000	52.55	46.95	4.40	6446	14.46	11.53	12.86	12.38	10.57
Int'l. 574	1098	Gas.	8250	3415	4	3.813x4.390	200.3	2200	52.97	1000	52.97	45.16	4.39	6360	11.25	8.55	9.63	9.05	7.43
584 Utility & Rowcrop	1313	Die.	8850	3185	4	3.875x4.38	206	2300	52.54	540	50.96	47.47	5.07	6859	15.23	12.34	13.41	12.95	11.10
Int'l. 666 Gas	1152	Gas.	10050	2360	6	3.750x4.390	290.8	2000	66.30	540	66.30	58.68	5.13	7981	11.95	8.45	10.08	9.04	7.27
Int'l. 666 Diesel	1151	Die.	10330	2130	6	3.875x4.410	312	2000	66.29	540	66.29	58.34	5.12	8012	14.24	11.76	12.60	11.98	10.16
Int'l. 674 Utility Gas	1128	Gas.	8330	3035	4	3.812x4.390	200	2400	58.53	540	56.01	53.48	7.04	6583	10.83	8.19	9.40	9.11	8.39
Int'l. 674 Utility Die	1129	Die.	8690	3040	4	3.875x5.060	238.6	2400	61.56	540	58.79	55.91	7.03	6833	15.25	12.16	13.52	13.11	11.31
684 Utility & Rowcrop	1314	Die.	9660	3825	4	3.875x5.06	239	2400	62.52	540	58.75	55.92	5.29	6858	15.55	12.21	13.27	13.02	11.28
686 Diesel 10 Speed	1336	Die.	10340	2360	6	3.875x4.375	310	2000	66.36	543	66.36	58.81	5.08	8043	16.07	13.16	13.93	13.27	11.53
784 Rowcrop Diesel	1315	Die.	9920	3830	4	3.937x5.062	246	2400	67.48	1000	64.09	58.65	5.18	8105	16.06	12.75	13.25	12.77	11.07
Hydro 84 Diesel	1316	Die.	9120	3115	4	3.937x5.062	246	2400	58.73	540	56.68	43.59	7.60	6572	14.01	10.50	10.13	9.82	8.34
Hydro 86 Diesel	1337	Die.	10710	2545	6	3.875x4.375	310	2400	70.89	540	66.64	54.10	4.03	8815	14.18	10.23	9.92	9.55	8.24
Int'l. Hydro 70 Gas	1154	Gas.	10140	2265	6	3.750x4.390	290.8	2400	69.61	540	64.10	54.62	4.57	8427	11.10	7.17	7.654	6.75	5.48
Int'l. Hydro 70 Die	1155	Die.	10430	1990	6	3.875x4.410	312	2400	69.51	540	65.41	53.49	4.03	8310	12.40	9.31	9.451	8.756	6.965
Farmall 766	1117	Die.	12720	1380	6	3.875x5.085	360	2600	85.45	1000	85.66	74.54	6.48	9236	14.85	10.36	12.08	11.05	9.13
Farmall 766	1094	Gas.	11880	1480	6	3.750x4.390	290.8	2400	79.73	1000	73.96	71.44	4.77	88.41	11.78	8.18	9.77	8.68	7.12
886 Diesel	1254	Die.	13040	970	6	3.875x5.085	360	2400	86.14	1000	83.16	75.67	6.35	10485	14.29	10.55	11.77	10.92	9.21
886 Diesel 16 Speed	1338	Die.	13450	1710	6	3.875x5.063	358	2400	86.57	1000	83.91	76.25	4.69	10807	16.01	11.77	12.97	12.21	10.62
886 Dsl. 16 Speed (1)	1339	Die.	13450	1710	6	3.875x5.063	358	2400	90.56	1000	88.23	80.13	4.69	10930	15.84	11.98	12.81	12.38	10.86
(1) Serial No. 2490208 U17026 and up.																			
Farmall 966	1082	Die.	13500	1875	6	4.300x4.750	414	2400	96.01	1000	93.50	82.75	4.41	10041	15.74	11.38	12.57	12.00	10.28
Farmall 966 Hydro	1095	Die.	12875	1175	6	4.300x4.750	414	2400	91.38	1000	88.29	71.43	8.51	8909	13.80	9.33	9.63	9.19	7.94
Int'l. 966 Diesel	1123	Die.	13670	1970	6	4.300x4.750	414	2600	100.80	1000	101.52	88.94	6.58	10036	15.68	10.94	12.36	11.68	9.84
986 Diesel	1255	Die.	14000	970	6	4.300x5.000	436	2400	105.68	1000	104.18	94.05	6.73	12176	15.56	11.34	12.65	11.72	10.02
F'all 1066 Hyd.Turbo	1083	Die.	13190	1870	6	4.300x4.750	414	2400	113.58	1000	109.32	88.13	6.47	9576	15.54	10.53	10.64	10.07	8.65
Farmall 1066 Turbo	1081	Die.	15170	3025	6	4.300x4.750	414	2400	116.23	1000	112.18	103.95	6.30	11625	16.52	11.47	13.16	12.02	10.13
Int. 1066 Turbo Diesel	1124	Die.	15260	1945	6	4.300x4.750	414	2600	125.68	1000	119.20	108.87	7.03	13000	16.37	11.32	12.78	11.97	9.99
1086 w/Radial Tires	1247	Die.	15640	2925	6	4.300x4.375	414	2400	131.41	1000	133.67	115.82	7.40	13503	16.39	11.90	13.28	12.36	10.45
1086 w/Bias Ply Tires	1247	Die.	15640	3100	6	4.300x4.375	414	2400	131.41	1000	133.67	114.14	6.66	12137	16.39	11.90	12.83	12.08	10.52
Farmall 1466 Turbo	1080	Die.	16230	2750	6	4.300x5.000	436	2400	133.40	1000	125.17	119.14	6.78	13165	16.86	12.30	13.92	12.85	10.96
Int. 1466 Turbo Diesel	1125	Die.	16660	2990	6	4.300x5.000	436	2600	145.77	1000	145.84	127.02	6.93	13673	17.03	11.83	13.03	12.01	10.35
Farmall 1468	1118	Die.	16310	2850	8	4.500x4.313	550	2600	145.49	1000	136.85	129.31	7.33	12932	15.93	12.40	13.87	13.22	11.17
Int'l 1566 Turbo Dsl	1174	Die.	18260	3065	6	4.300x5.000	436	2600	161.01	1000	162.31	140.35	5.64	15774	16.16	11.51	12.55	11.69	9.86
Int'l 1568 Diesel	1175	Die.	17350	2400	8	4.500x4.313	550	2600	150.70	1000	147.79	133.79	5.69	14918	14.99	12.08	13.00	12.59	10.80
1586 w/Radial Tires	1248	Die.	17600	2480	6	4.300x5.000	436	2500	161.55	1000	156.09	140.65	5.55	16665	16.51	12.28	13.02	12.38	10.51
1586 w/Bias Ply Tires	1248	Die.	17600	3010	6	4.300x5.000	436	2500	161.55	1000	156.09	140.08	6.05	15124	16.51	12.28	12.74	12.38	10.54
3388 Diesel	1319	Die.	17850	430	6	4.300x5.000	436	2400	130.61	1000	128.59	114.42	6.67	16764	16.85	12.00	13.52	12.17	10.09
3588 Diesel	1320	Die.	18890	1270	6	4.300x5.350	466	2400	150.41	1000	152.07	130.94	6.65	17589	16.98	12.19	13.13	12.20	10.30
Int'l. 4166	1116	Die.	20010	3685	6	4.300x5.000	436	2400	150.63	1000	152.72	130.57	5.92	19434	16.84	11.86	13.01	11.88	9.93
Int'l. 4366 Turbo D	1153	Die.	23000	1310	6	4.300x5.350	466	2600	....	....	....	168.90	6.65	23138	....	....	12.54	11.98	10.3
4386 Diesel	1256	Die.	24930	None	6	4.300x5.350	466	2600	....	....	....	176.02	8.71	23321	....	....	12.43	11.92	10.18
4568	1216	Die.	29870	4120	8	5.3125x4.50	798	2600	....	....	....	235.72	6.76	27995	....	....	12.89	11.79	9.73
4786 Diesel	1317	Die.	34350	4150	8	5.313x4.500	798	2600	....	....	....	265.55	4.79	33468	....	....	12.80	11.92	9.86
Kubota																			
L185	1285	Die.	3370	1430	2	3.000x3.23	45.3	2800	15.33	540	14.07	13.03	5.57	1939	13.60	10.90	10.38	10.82	9.26
L185DT	1286	Die.	3415	1283	2	3.000x3.23	45.3	2800	15.45	540	14.16	12.65	3.94	2322	13.49	11.00	10.34	10.24	8.70
L-210	1071	Die.	3610	1290	2	3.460x3.460	65.3	2700	19.10	540	16.49	14.69	5.03	2020	13.19	10.94	10.86	10.56	9.16
L225 Diesel	1145	Die.	3452	1457	3	3.000x3.200	....	2700	20.86	1000†	19.96	17.69	6.34	2015	14.25	11.12	10.71	10.78	9.36
L245	1283	Die.	3694	1498	3	3.000x3.23	68	2800	22.06	540	20.11	18.66	5.74	2067	13.98	11.07	10.74	10.70	9.16
L245DT	1284	Die.	3792	1410	3	3.000x3.23	68	2800	22.35	540	20.15	18.48	6.06	2419	14.33	11.21	10.88	10.67	9.22
L-260	1072	Die.	4020	1380	2	3.540x3.940	77.6	2600	24.11	540	22.88	19.64	5.12	2575	13.52	13.16	10.45	10.90	8.31
L285 Diesel	1198	Die.	4030	1585	4	2.992x3.228	91	2400	26.45	540	23.58	22.94	6.62	3134	14.63	12.16	11.78	12.16	10.65
M4500DT & M4500 16 Speed	1348	Die.	7800	2635	6	3.23x3.23	158.5	2600	49.72	540	44.49	42.50	6.16	4812	15.19	12.22	11.90	12.02	10.77
M7500DT & M7500 16 Speed	1349	Die.	9510	3530	4	4.134x4.528	243	2400	72.34	540	66.54	61.29	6.65	6327	17.83	14.15	13.93	14.20	12.40

Nebraska Tractor Tests Summarized (Tests from 1971 through 1980)

MAKE AND MODEL OF TRACTOR	Test No.	Fuel Used	Weight With Ballast	Lbs. Ballast Carried	ENGINE No. of Cylinders	Bore and Stroke	Displacement Cu. in.	Rated RPM Dwbr.	Max. PTO HP @ Rated Engine RPM	Std. PTO RPM	Max. PTO HP @ Std. PTO RPM	Max. Drawbar HP	MPH @ Max. Dwbr. HP	Max. Lbs. Pull	FUEL CONSUMPTION (HP Hours Per Gallon) @:– Max. PTO HP @ Std. PTO RPM	PTO Average @ Varying Power	–Varying Drawbar Power– Max. Available Power	75% of Pull Max. Power	50% of Pull @ Max. Power
Lamborghini																			
1056DT	1269	Die.	12050	1700	6	3.86x4.72	331	2220	92.13	1000	89.98	79.51	6.86	9135	15.15	13.02	12.45	12.74	10.93
Leyland																			
245 Diesel	1177	Die.	7850	1970	3	3.600x5.000	152.7	2250	39.73	540	36.38	35.09	4.47	5056	16.31	12.60	13.02	12.67	11.29
255 Diesel	1176	Die.	8610	2310	4	3.822x4.826	222	2200	47.91	540	43.85	43.00	6.58	5891	16.42	11.10	12.78	11.81	9.50
472 & 272 Die. 9-Speed	1341	Die.	11990	4580	4	3.858x4.921	230	2200	63.52	540	58.50	53.27	5.91	7224	14.97	12.28	11.32	11.67	10.48
482 & 282 Die 9 Speed	1340	Die.	12000	4590	4	3.858x4.921	230	2200	74.28	540	70.86	61.19	5.86	7032	17.58	12.63	12.70	12.10	10.09
2100 Diesel	1178	Die.	13260	4350	6	3.860x4.920	344.7	2100	88.40	1000	83.30	75.70	4.95	8617	16.29	13.20	13.16	13.24	11.24
Long																			
360 Diesel	1298	Die.	6410	1930	3	3.74x4.33	143	2400	36.16	540	31.06	31.91	5.20	4808	14.41	11.97	12.45	12.13	10.48
R9500 Special	1107	Die.	13700	5530	6	3.875x5.000	354	2250	97.72	540	88.13	82.94	6.13	10216	16.21	13.25	13.02	13.10	11.14
U445	1108	Die.	7800	3320	3	3.740x4.330	143	2400	41.93	540	36.53	37.55	5.51	5910	13.40	12.01	11.84	13.29	11.39
U550	1109	Die.	9110	4540	4	3.740x4.330	190.7	2400	53.61	540	47.66	48.03	7.15	6944	15.10	12.41	13.09	13.21	11.76
900 Diesel	1163	Die.	12575	4375	4	4.33x4.72	285	2200	72.88	1000	72.86	62.50	6.53	7843	13.06	12.15	10.97	13.00	11.38
Massey-Ferguson																			
MF230 Gasoline	1215	Gas.	4870	1030	4	3.375x4.062	145	2000	34.34	540	31.29	29.58	5.08	3717	11.85	8.72	9.89	8.90	7.85
MF230 Diesel	1214	Die.	5110	1110	3	3.600x5.000	153	2000	34.53	540	30.80	29.66	7.64	4030	18.18	14.81	15.06	14.74	12.87
MF235 Gasoline	1194	Gas.	5785	1655	4	3.375x4.062	145	2250	41.13	540	33.87	35.29	5.86	42.94	10.49	7.99	8.69	8.07	6.69
MF235 Diesel	1187	Die.	5860	1725	3	3.600x5.000	153	2250	42.39	540	35.29	36.29	5.84	4281	16.78	13.52	13.80	13.39	11.56
MF255 Gasoline	1190	Gas.	7280	1140	4	3.875x4.500	212	2000	50.01	540	47.14	43.49	5.28	5668	10.91	8.00	8.94	8.54	6.72
245 Diesel	1251	Die.	6150	2100	3	3.600x5.000	153	2250	42.90	540	36.50	36.75	5.92	4279	16.25	12.72	12.43	12.79	11.13
245 Gasoline	1252	Gas.	6020	2120	4	3.375x4.062	145	2250	41.09	540	34.15	35.50	5.90	4298	11.74	9.07	9.50	9.07	7.88
MF255 Diesel	1189	Die.	7130	1160	4	3.600x5.000	203	2000	50.69	540	45.55	43.72	5.28	5257	15.88	13.32	13.44	13.36	12.24
255 12-Speed	1250	Die.	7310	895	4	3.875x5.000	236	2000	52.68	540	48.37	44.75	7.89	5591	16.92	12.70	13.34	12.82	11.03
MF265 Diesel	1188	Die.	8200	1815	4	3.875x5.000	236	2000	60.73	540	54.76	51.87	5.23	6248	15.88	13.44	13.52	13.51	12.16
MF275 Diesel	1193	Die.	9330	2720	4	3.975x5.000	248	2000	67.43	540	61.76	60.16	5.16	7292	14.18	12.51	13.04	13.22	11.63
MF285 Diesel	1171	Die.	11760	4110	4	4.500x5.000	318	2000	81.96	1000	81.96	70.53	7.77	8846	14.98	12.68	12.85	12.90	11.34
MF1085 Diesel	1133	Die.	14385	2845	4	4.500x5.000	318	2000	81.58	1000	81.58	70.76	5.58	10355	15.82	13.21	13.43	13.15	11.55
MF1105 Diesel	1132	Die.	16725	4405	6	3.875x5.000	354	2200	100.72	1000	96.43	86.26	4.36	7415	15.43	11.53	12.37	11.55	9.81
MF1135 Diesel	1135	Die.	18900	5350	6	3.875x5.000	354	2200	120.84	1000	118.47	106.52	4.56	13955	16.18	12.24	13.22	12.56	10.71
MF1155 Diesel	1134	Die.	20460	5554	8	4.250x5.000	540	2200	140.97	1000	134.11	124.90	4.40	15630	15.66	12.77	13.15	13.00	11.45
MF1500	1086	Die.	20555	3355	8	4.500x4.500	573	3000	....	....	....	152.77	5.30	17295	....	....	12.99	12.49	10.90
MF1505 Diesel	1172	Die.	20970	3010	8	4.500x5.000	636	2800	174.46	1000	175.95	154.10	6.98	17226	14.55	11.41	12.27	11.43	9.54
MF1800	1087	Die.	21760	4430	8	4.500x5.000	636	2800	....	....	....	183.65	7.07	18432	....	....	13.27	13.49	11.93
MF1805 Diesel	1173	Die.	22790	4790	8	4.500x5.000	636	2800	192.65	1000	191.60	170.17	6.95	18781	14.77	12.14	12.76	12.41	10.77
2675, 8-Speed	1321	Die.	14280	1930	6	3.875x5.0	354	2500	100.84	1000	95.00	86.18	5.91	10226	15.00	11.14	11.48	11.57	10.01
2675, 24-Speed	1309	Die.	14495	2065	6	3.875x5.0	354	2500	103.29	1000	96.67	86.99	7.21	9674	15.43	11.56	11.76	11.49	9.95
2705, 8-Speed	1322	Die.	16800	4295	6	3.875x5.0	354	2500	121.00	1000	114.44	101.47	6.17	12588	16.84	11.22	12.54	11.30	9.45
2705, 24-Speed	1310	Die.	17490	4895	6	3.875x5.0	354	2500	122.20	1000	115.85	103.02	7.50	13085	16.65	11.22	12.74	11.27	9.23
2745 Diesel	1311	Die.	19490	4300	8	4.25x4.75	539	2600	143.40	1000	132.21	123.37	7.78	15386	15.40	10.62	11.96	11.13	9.39
MF2775	1278	Die.	20400	4210	8	4.63x4.75	640	2600	165.95	1000	149.86	143.70	5.72	17407	16.05	11.50	12.57	11.52	9.85
2805 24-Speed	1258	Die.	21170	5540	8	4.630x4.750	640	2500	194.62	1000	181.77	160.72	7.10	17369	16.29	11.33	12.21	11.14	9.27
4800 Die 12 & 18 Speed	1342	Die.	30520	None	8	5.5 x4.75	903	2600	179.31	1000	172.88	158.29	3.73	25294	15.10	10.12	12.13	10.73	8.39
4840 Die 12 & 18 Speed	1343	Die.	30920	None	8	5.5 x4.75	903	2600	210.67	1000	210.61	186.36	4.84	28191	15.57	10.77	12.41	11.25	9.32
4880 Die 12 & 18 Speed	1344	Die.	31090	None	8	5.5 x4.75	903	2600	272.81	1000	267.38	244.57	6.54	29272	16.80	11.51	13.50	11.98	9.58
Minneapolis-Moline																			
G955	1161	Die.	12060	None	6	4.375x5.000	451	1800	98.38	1000	98.82	83.40	5.44	8374	13.92	11.93	11.26	11.76	10.29
G1350	1069	Die.	20540	8490	6	4.750x5.500	585	2200	141.44	1000	128.10	125.29	5.70	15620	15.23	12.16	12.33	12.23	10.86
G1355 Diesel	1141	Die.	18070	974	6	4.750x5.500	585	2200	146.62	1000	146.62	128.95	7.89	14178	15.21	12.47	13.61	12.85	11.23
A4T-1600	1070	Die.	19850	None	6	4.750x5.500	585	2200	143.27	1000	125.38	129.48	6.77	18236	14.14	11.76	12.56	12.24	10.79

Oliver																		
2155	1069	Die.	20540	8490	6	4.750x5.500	585	2200	141.44	1000	128.10	125.29	5.70	15620	15.23	12.16	12.33	12.23	10.86
2255 Diesel	1140	Die.	17990	1583	8	4.500x4.500	573	2600	146.72	1000	147.65	126.13	5.70	14770	15.66	12.47	13.43	12.85	11.25
2655	1070	Die.	19850	None	6	4.750x5.500	585	2200	143.27	1000	125.38	129.48	6.77	18236	14.14	11.76	12.56	12.24	10.79
Same																			
Panter 4WD Diesel	1185	Die.	12000	2772	5	3.860x4.720	276	2200	80.02	1000	79.10	66.67	5.75	10389	14.79	12.74	12.40	12.30	10.00
Tiger 1000	1268	Die.	11620	2500	5	4.13x4.72	317	2200	90.45	1000	89.42	78.84	6.35	9116	15.48	13.22	12.41	13.08	11.26
Buffalo 4WD Diesel	1186	Die.	13795	3708	6	4.130x4.720	380	2200	104.94	1000	104.94	88.24	4.24	10941	15.23	12.78	12.47	12.44	10.76
Satoh																			
S650G	1106	Gas.	3640	1400	4	2.677x2.677	60.2	2800	22.03	1000†	20.37	18.78	3.96	2794	9.91	8.38	8.55	9.03	7.88
S750DD & S750D 9 Speed	1347	Die.	5550	1620	3	3.386x4.016	108.4	2500	33.45	540	28.11	28.99	5.93	4295	11.92	10.89	9.86	11.18	9.58
Steiger																			
Wildcat III ST-210 & RC-210	1237	Die.	22260	None	8	4.500x5.000	636	2800	....	....	....	171.44	5.84	21052	....	....	12.71	12.58	10.82
Bearcat	1079	Die.	22650	2086	8	4.500x5.000	636	2800	....	....	....	165.64	5.76	21287	....	....	12.91	12.46	11.04
Bearcat II	1162	Die.	23020	1585	8	4.500x5.000	636	2800	....	....	....	180.69	6.57	22622	....	....	12.79	12.37	10.92
Bearcat III ST-220	1246	Die.	29380	None	6	5.500x6.000	855	2100	....	....	....	175.58	4.84	26936	....	....	13.24	12.60	11.04
Bearcat III PT225	1272	Die.	30825	None	6	4.75x6.00	638	2200	(1)	....	....	180.86	6.33	29749	....	....	12.02	10.80	9.29
Bearcat III 225 without PTO												187.59	5.58	29953	....	....	12.81	11.52	10.07
Cougar II	1170	Die.	27995	1305	6	4.750x6.000	638	2200	....	....	....	228.15	4.44	26432	....	....	13.15	12.77	11.59
Cougar III ST-250	1239	Die.	29800	None	6	4.750x6.000	638	2200	....	....	....	210.35	6.38	26612	....	....	12.74	11.90	10.36
Cougar III ST-251	1233	Die.	30840	None	6	5.500x6.000	855	2100	....	....	....	205.82	7.98	26880	....	....	14.74	13.69	11.60
Cougar III PT270	1273	Die.	32210	1495	6	4.75x6.00	638	2200	(1)	....	....	219.39	6.29	30122	....	....	12.73	11.81	10.23
Cougar III 270 without PTO												224.54	4.89	29950	....	....	12.97	12.45	10.76
Cougar III ST-270	1238	Die.	29930	None	6	4.750x6.000	638	2200	....	....	....	228.96	6.38	25731	....	....	13.32	12.62	10.96
Panther III ST-310	1235	Die.	30850	None	6	5.500x6.000	855	2100	....	....	....	261.78	7.90	26757	....	....	13.95	13.09	11.02
Panther III ST-325	1236	Die.	31080	None	6	5.400x6.500	893	2100	....	....	....	281.94	7.93	28189	....	....	14.82	14.19	12.64
PTA-325 10-Speed	1355	Die.	33960	3410	6	5.4x6.5	893	2100	....	....	....	274.88	5.34	31876	....	....	14.26	13.45	11.55
Panther III PT350	1274	Die.	34000	2855	8	5.5x4.75	903	2600	(1)	....	....	305.48	6.51	32276	....	....	14.91	13.75	11.32
Panther III 350 without PTO												311.64	7.38	32059	....	....	15.03	Not Tested	
Tiger II	1169	Die.	22930	2330	8	5.500x4.750	903	2600	....	....	....	270.21	6.73	28097	....	....	13.88	12.70	10.61
Tiger III ST450	1282	Die.	47370	4645	6	6.25x6.25	1150	2109	....	....	....	385.74	5.23	42715	....	....	15.57	Not Tested	
Versatile																			
555 Diesel	1331	Die.	25980	6330	8	4.625x4.125	555	2550	184.35	1000	184.35	157.30	4.05	23883	16.33	11.15	12.96	11.17	8.83
835 12 Speed	1356	Die.	28000	3720	6	5.5x6.0	855	2100	198.23	1009	198.23	179.07	6.13	26380	15.13	11.36	13.16	11.87	9.70
875 Diesel	1332	Die.	29480	4160	6	5.5x6.0	855	1750	247.16	1000	247.16	242.03	6.36	26795	16.06	12.02	14.35	12.53	10.34
895 Diesel 12 Speed	1335	Die.	32500	7880	6	5.5x6.0	885	2100	....	....	....	261.63	6.45	29402	....	....	15.15	13.72	11.57
White																			
2-50 Field Boss	1231	Die.	6880	2325	3	3.940x4.330	158	2500	47.02	540	43.94	41.88	4.80	5640	15.80	13.03	13.26	13.49	11.97
2-60 Field Boss	1232	Die.	8990	3830	4	3.940x4.330	211	2400	63.22	540	54.35	54.78	5.07	7352	17.63	13.82	14.40	13.87	11.93
2-70 Diesel	1212	Die.	9630	1000	6	3.875x4.000	283	2200	70.71	1000	70.71	59.47	6.40	7550	14.56	12.28	11.92	12.13	10.72
2-85 Diesel	1213	Die.	12280	580	6	3.875x5.000	354	2200	85.54	1000	85.54	71.93	8.13	9309	14.62	11.72	12.24	11.74	9.71
2-105 Field Boss	1181	Die.	11810	None	6	3.875x5.000	354	2200	105.61	1007	105.61	90.81	6.34	9212	15.76	12.02	12.89	11.95	10.00
2-135	1275	Die.	16360	2225	6	4.56x4.87	478	2200	137.64	1000	138.03	117.67	8.93	11907	14.91	11.38	12.31	11.42	9.73
2-150 Field Boss	1182	Die.	16940	None	6	4.750x5.500	585	2200	147.49	1007	147.49	127.49	5.63	15059	14.46	11.90	12.07	12.14	10.63
4-150 Field Boss	1159	Die.	16960	None	8	4.500x5.000	636	2800	151.87	1000	152.45	133.34	6.34	16925	15.09	11.45	12.46	11.34	9.21
2-155	1276	Die.	16650	None	6	4.56x4.87	478	2200	157.73	1000	162.37	139.58	9.04	14512	15.38	11.91	12.69	11.53	9.97
2-180	1287	Die.	18280	None	8	4.5x5.0	636	2800	181.89	1000	181.89	163.64	6.50	15499	14.38	11.66	12.85	12.48	10.56
4-180 Field Boss	1184	Die.	20600	None	8	4.500x5.000	636	2800	181.07	1000	182.30	156.54	4.59	20469	14.19	11.47	11.79	11.56	9.98
4-210 Field Boss	1318	Die.	23735	None	8	4.5x5.0	636	2800	182.44	1000	182.44	162.25	5.89	22934	14.26	11.53	12.34	12.10	10.25
Yanmar																			
YM240 Diesel	1199	Die.	3305	1355	2	3.543x3.543	70	2400	19.76	540	18.75	16.60	4.86	2442	15.05	12.64	12.35	11.95	10.37

†See complete test fpr data @ 540 rpm.